Borland
A MICRO FOCUS COMPANY

Silk Central 15.5

Help

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Contents

Silk Central 15.5 6

What's New in Silk Central 15.5 6

Manual Testing Enhancements 6

Multiple Requirements Management Integrations per Project 6

Git Source Control Profile Integration 6

Comparing Test Results of Multiple Test Runs 7

Downloading Displayed Data into Excel 7

Storing Percentile Marker Data for Silk Performer Results 7

Running the Front-End Server in 64-bit Mode 7

What's New in Silk Central Connect 7

Usability Enhancements 8

Integration Enhancements 9

Technology Updates 9

Getting Started 9

Tour of the UI 9

Installing and Licensing Silk Central 12

Issue Manager 12

Browser Settings 13

Login and Logout 13

Working with Silk Performer Projects 14

Working with Silk Performance Explorer 14

Silk Central Architecture 14

Silk Central, Risk-Based Testing, and Quality Goals 16

Quick Start Tasks 18

Dashboard 40

Adding Panels to the Dashboard 41

Dashboard Panels 41

Dashboard Panel Permissions 44

Adding a Report to a Dashboard Panel 44

Requirements 45

Managing Requirements 45

Requirements Toolbar Functions 47

Requirements Tree 48

Requirements Document View 49

Requirement Properties 49

Requirement Attachments 52

Working with Tests 54

Coverage 57

Requirement History 58

Requirement Change Notification 60

Requirements Reports 60

Flags 62

Requirements Import 63

External Requirements Management Tools 69

Tests 82

Tests Document View 82

Working with the Tests Tree 83

Test Toolbar Functions 88

Test Reports 89

Success Conditions 93

Test Containers 94

Test Folders 95
Test Packages 96
Test History 99
Tests 100
Libraries 131
Windows Script Host Tests 139
Test Export, Update, and Import 144
Integrating Silk Central into Rally 147
Screen Capturing 148
Video Capturing 149
Execution Planning 150
Execution Planning Toolbar Functions 150
Execution Planning Document View 151
Manual Execution Planning 152
Configuration Testing 166
Working with the Execution Plans Tree 171
Executing Tests Assigned to Execution Plans 196
Manual Testing 198
Analyzing Test Runs 206
Current Run Page 215
Working with Silk Performer Projects 217
Silk Test Classic Tests 220
Tracking 221
Activities 222
Project Overview Report 230
Quality Goals 230
Issues 232
Creating New Issues 232
Viewing Issue Statistics in Document View 232
Issues Document View 232
Viewing Issue Statistics in Details View 233
Issues Page 233
Assigning Existing Issues 233
Updating Issue States 234
Deleting Issues (Issue References) 234
Issue Manager 234
Reports 291
The Reporting Data Mart 291
Reporting Area 306
Code Analysis 323
Default Reports 344
Projects 367
Build Information 367
Comparing a Project with a Baseline 368
Selecting Projects 368
Project List 368
Switching to a Recently-Accessed Project 369
Settings Configuration 369
Filtering 427
Administration 431
Getting Started 432
Configuring the System 434
Configuring the Application 441
Configuring Advanced Settings 500
System Administration 517
System Administrator 517

Databases 518
Clients 522
Infrastructure 526
System Diagnostics 529
Integrations 531
Code Analysis Tools Integration 531
Issue Tracking Profile Integrations 531
Other Integrations 542
Requirement Management Tools 545
Source Control Profile Integrations 553
Test Automation Tools 567
Communicating with an External System Over SSL 588

Silk Central 15.5

Silk Central is a powerful, all-inclusive, software test-management tool. Silk Central builds quality and productivity into your testing process, speeding the delivery of successful software projects while minimizing the risks of application failures. It consolidates all the critical software-testing phases within a single, scalable, Web-based testing system, enabling your local and distributed software-development teams to share experiences, resources, and critical information.

What's New in Silk Central 15.5

Silk Central 15.5 introduces significant enhancements and changes.

Manual Testing Enhancements

Updating all Tests of an Execution Plan or Testing Cycle

The manual testing window has been updated so that the overview area now lists all tests of an execution plan or testing cycle. This allows you to update the status of several tests very efficiently, while still offering the update of individual test steps in the test steps area at the bottom of the manual testing window.

Re-running Testing Cycles with Failed/Not Executed Tests

When duplicating a testing cycle, you can now choose how you want to copy the test assignment. For example, you can choose not to copy **Passed** tests, enabling you to re-run the testing cycle only with **Failed** and **Not Executed** tests.

Moving Tests Between Testers While Preserving the Interim Results

Interim results are no longer discarded when a manual test is moved from one tester to another. Tests can be moved within the current or any other running testing cycle.

Synchronizing Tests of an Execution Plan

The **Assigned Tests** tab of the selected execution plan now offers the ability to synchronize the list of assigned tests with the most current test assignment.

Multiple Requirements Management Integrations per Project

You can now configure up to 5 requirements management tool integrations per Silk Central project.

Important: Before upgrading from Silk Central 15.0 or earlier to the current version, perform a **Synchronize All** to synchronize all your requirements with your integrated requirements management tools.

Git Source Control Profile Integration

Silk Central now supports Git with a new source control profile plugin.

Comparing Test Results of Multiple Test Runs

The **Test Results** view provides an optimized results overview with full drill-down capabilities. All information is included, like result files, thumbnail screenshots, messages, and stacktraces. This allows you to quickly analyze the root cause of failed test runs, especially because you can compare the results of multiple runs side-by-side.

Downloading Displayed Data into Excel

You can now download displayed tests into an Excel sheet.

This function is enabled in the **Document View** and **Grid View**. In the **Document View**, the action generates an Excel sheet that includes all currently visible rows. In the **Grid View**, the action generates an Excel sheet that includes all rows, not just the visible ones.

Storing Percentile Marker Data for Silk Performer Results

Silk Performer results contain a high amount of percentile marker data that would consume a lot of space in the database (table `TM_PerfReportPercentileMarker`). In previous releases, this information was always stored in the database, which could cause issues if you have many Silk Performer tests. With Silk Central 15.5, storing percentile marker data is disabled by default, but can be turned on if desired.

Running the Front-End Server in 64-bit Mode

Use this option to leverage memory above 2GB. Refer to "Memory Settings for Silk Central Servers" in the Online Help for detailed information.

Restriction: The following integrations are not supported when running the front-end server in 64-bit mode:

- IBM Rational ClearQuest
- IBM Rational RequisitePro

The following integrations have limitations when running the front-end server in 64-bit mode:

- Serena Version Manager (PVCS): The front-end server service needs to run as a user account, not as system account.
- UNC source control: Authentication is not possible.

What's New in Silk Central Connect

Silk Central Connect 15.5 introduces significant enhancements and changes.

Using Silk Central Connect in Silk Central Projects

Silk Central Connect's Silk4J projects can now be used within Silk Central projects.

Combine the powers of Silk Central Connect and Silk Central. This enables you to use all Silk Central features for your Silk Central Connect projects, for example requirements, issues, attributes, schedules, parameters, dependencies, notifications, and more.

Testing Internal Web Applications Using Cloud-Based Execution Servers

If you are testing an internal Web application on your intranet using cloud-based execution servers, you can configure the tunnel settings for local intranet website testing. With this setting, the Silk Central application server opens a tunnel to cloud-based execution servers and acts as a proxy to allow testing a website in your local intranet. Note that this option is slower than a direct connection, so only select it if needed.

Usability Enhancements

This section lists the usability enhancements that have been made throughout Silk Central.

Project-Aware Dashboard Panels

You can now configure dashboard panels to always display the data of the currently active project, rather than having to add multiple panels for different projects.

For most panels, you need to configure a project, as the panel will only show data for a certain project. You can add several panels to show appropriate data for other projects side-by-side, or configure **<Use current project>** for the panel to always display the data of the currently active project. Click (**Configure**) in the header of a panel to configure a different project. You need certain permissions to view or edit the content of the different panels.

Uploading and Inserting Images in Descriptions

Additionally to inserting linked images, you can now upload and insert images in descriptions of requirements, tests, and test steps.

Permission to Delete Test Runs and Execution Plan Runs

A new permission has been added for deleting test runs and execution plan runs. Users with the role **Test Manager** and **Tester** own this permission per default.

Conversion of Single-Select Lists to Multi-Select

You can update an existing single-select list to be a multi-select list.

Sending Report Subscriptions as Excel Template Attachment

You can now configure your report subscriptions to send a report per email as attached Excel template.

Improved Assignment of Tests and Requirements

Assigning tests to execution plans and requirements to tests has been made even easier by adding the options of filtering by name and by adding a context menu to expand and collapse requirement nodes.

Global Search for ID

The global search functionality in Silk Central now also supports searching for IDs across all supported assets.

The **Search** field allows you to perform a search across several assets in Silk Central. The following assets are considered when submitting a global search:

- Requirements and their properties
- Tests, folders, test containers and their attribute values, properties, and parameters
- Test steps and their properties
- Execution plans, configuration suites, testing cycles, folders and their parameters and keywords
- Library folders, steps, and shared steps
- Issues (only issues that are assigned to a test)

Note: The search index is updated in the background on a regular basis. The search results may occasionally be slightly outdated.

Linking Issues at Creation in Issue Manager

When creating an issue in Issue Manager, you now have the option to immediately create a link between this issue and another issue.

Integration Enhancements

This section lists the enhancements that have been made to the integrations in Silk Central.

Team Foundation Server 2013 Support

Silk Central 15.5 now supports Team Foundation Server 2013.

Microsoft Visual Studio/Visual Studio Test Agent 2012 and 2013 Support

Silk Central 15.5 now supports Microsoft Visual Studio/Visual Studio Test Agent 2012 and 2013.

IBM Rational DOORS 9.5 Support

Silk Central 15.5 now supports IBM Rational DOORS 9.5.

Bugzilla 4.4.2 Support

Silk Central 15.5 now supports Bugzilla 4.4.2.

Mandatory Field Support for Bugzilla Integration

Silk Central now supports mandatory fields in its Bugzilla issue tracking profile integration.

Technology Updates

Oracle 12c (version 12.1.0.1.0) Support

Silk Central 15.5 now supports Oracle 12c (version 12.1.0.1.0).

Getting Started

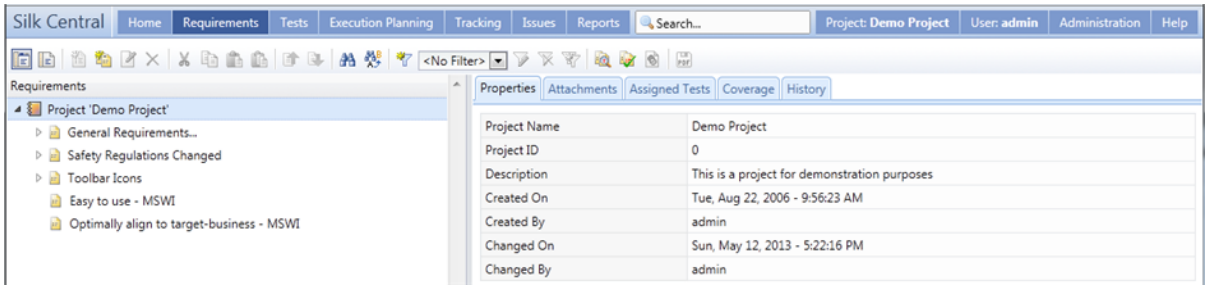
Silk Central promotes product quality throughout the development cycle.

Today's e-business systems are increasingly complex, and reliability is more important than ever. Therefore, assuring product quality throughout the development cycle is an important key to success. The best way to check a product’s quality over time is to perform key tests on a daily basis. Silk Central helps in this regard by automating test executions that follow freely configurable schedules, both during product development and after deployment. By providing reports with different levels of detail, checking the status of products in development is as straightforward as checking an HTML report in a Web browser.

With complex software projects, thorough testing of new builds is critically important. Silk Central saves time and man hours by automating this process.

Tour of the UI

This topic provides an overview of the Silk Central user interface.



Basic UI Structure

The UI of Silk Central includes:

- The **Menu**: Placed across the top of the user interface. It gives you quick access to the functional units of Silk Central.
- The **Workspace**: In this example, the **Workspace** is the tabbed region showing the functional work area of the currently selected Silk Central unit. This view changes based on the unit you are working in.

The Units of Silk Central

The **Menu** gives you quick access to the functional units of Silk Central. It includes the following major sections:

Home

Displays the dashboard, which is your personal starting area. You can customize the dashboard by adding and arranging various panels, which give you the information you need for your daily work.

Requirements

Displays and enables you to maintain control over your project's requirements during development. You can perform the following tasks:

- Create, modify, and delete requirements.
- Associate tests with requirements.
- Track the change history of requirements.
- Generate test plans from requirement lists.

You can additionally access and manage the following:

- Properties of the requirements.
- Integrated external requirement-management tools.
- Requirement filters.
- Notifications that inform you about changes to the requirements.

Tests

Enables you to create and manage automated and manual tests. You can additionally access and manage the following:

- Libraries of shared steps, out of which commonly-used manual tests and test steps can be reused.
- Properties of the individual test steps for manual tests.
- Test attributes.
- The data sources that can be used for tests.
- Source control profiles, in which these tests are stored.
- Test filters.

- Notifications that inform you about changes to the tests.
- Version and build of the product that is tested with a specific test.

Execution Planning

Displays and allows you to manage the executions that execute the tests. You can perform the following tasks:

- Configure execution plans.
- Assign tests to execution plans.
- Set-up execution plan dependencies.
- Configure execution-server deployment, including the execution servers on which the tests are executed.
- Plan and manage the manual execution of tests.

You can additionally access and manage the following:

- Execution filters.
- Execution schedules.
- Version and build of the product that is tested with a specific execution of a test.
- Notifications that inform you about changes concerning the execution process.

Tracking

Displays the **Activities** page, the **Cross-Project Activities** page, the **Project Overview Report**, and **Quality Goals**.

The **Activities** page displays the activity for recently-executed, current, and upcoming execution plans on a per-project basis.

Issues

Displays and enables you to manage the issues that are related to the active project.

You can additionally access and manage the following:

- Projects in Issue Manager, when issues reside in Issue Manager.
- External issue tracking profiles, in which issues may possibly reside.

Reports

Displays and enables you to manage the reports which provide you with information on the requirements, tests, and execution plans. You can perform the following tasks:

- Generate reports.
- Download report templates.
- Edit report parameters.
- Create new reports based on pre-installed templates.

Additionally provides access to code analysis functionality information, with which you can evaluate the degree to which the code in your Application Under Test (AUT) is covered by test cases. You can then make informed estimates regarding effort, cost, and risk associated with specific code changes.

Global Search

The **Search** field allows you to perform a search across several assets in Silk Central. The following assets are considered when submitting a global search:

- Requirements and their properties
- Tests, folders, test containers and their attribute values, properties, and parameters

- Test steps and their properties
- Execution plans, configuration suites, testing cycles, folders and their parameters and keywords
- Library folders, steps, and shared steps
- Issues (only issues that are assigned to a test)

Note: The search index is updated in the background on a regular basis. The search results may occasionally be slightly outdated.

Projects

Displays and enables you to manage all projects in your Silk Central installation from a high-level test-manager's view. Additionally enables you to switch between projects, and manage project settings.

User

Displays and enables you to manage user settings. Additionally enables the following:

- Log out of Silk Central.
- Print the current Silk Central page.
- Bookmark the current Silk Central page. This is especially useful for bookmarking reports, where the current parameters are saved in the book-marked URL.

Administration

Displays and enables you to manage the administration settings. For additional information, see the *Administration* topics in this Help.

Help

Click to view context-sensitive help for the current page. Additionally provides access to the following:

- The Silk Central documentation.
- Tools that are shipped with Silk Central.
- About. Shows version and license information.

Context Menu Commands

Silk Central supports Windows-style context menus across many test management elements, for example tests, requirements, execution plans, folders, containers, reports, and more. Available through right mouse-click, context menu commands typically include those commands that are available from each unit's toolbar. For elements listed in tree views, context menus offer commands for expanding and collapsing tree view elements. Commands that are not available to selected elements are disabled.

Installing and Licensing Silk Central

For information regarding the installation and licensing of Silk Central, refer to the Silk Central Installation Help, which is also available from both the Silk Central installation CD and the Silk Central download site.

Issue Manager

Issue Manager, the issue-tracking tool of Silk Central, is fully integrated with Silk Central, enabling you to correlate issues with system requirements and executed tests.

Test issues can be added and managed in the menu through **Tests** > **Details View** > **Issues**. For more information, see the Issue Manager topics in this Help.

Browser Settings

To optimize the functionality and performance of Silk Central, adjust the following settings in your browser:

- Make sure that you enabled the cache of your browser.
- If you have problems accessing Silk Central through the browser, add the Silk Central server to the list of trusted sites in your browser.

For a list of supported browsers, refer to the Release Notes. In the menu, click **Help** > **Documentation** . Click **Silk Central 15.5 Release Notes**.

Login and Logout

The procedures in this section explain how to log in to and out of Silk Central.

Logging in to Silk Central

To log in to Silk Central:

1. Navigate to the URL of your Silk Central installation.
2. On the Silk Central login page, enter your user name in the form `<client>\<username>` and your password.

   When you login to Silk Central with a user of the default client, you do not need to enter the client name. Just enter your user name.
3. If you check the **Remember login** check box, you will stay logged in until you click **Log out** in the menu (**User** > **Log out**).
4. Click **Login**.

You will be directed to your personal **Dashboard**. You can quickly **Continue working in your last visited area** by clicking this link on the top of the **Dashboard** page.

Logging out from Silk Central

To log out from Silk Central:

1. In the menu, go to **User:<Username>**.
2. Click **Log out**.

Login Page

Use this page to login to Silk Central. The page displays the following items:

Item	Description
Client\Username	Enter your LDAP or Silk Central user name in the following way: <client>\<username>. When you login to Silk Central with a user of the default client, you do not need to enter the client name. Just enter your username.
Password	Enter a valid password for the user name that you entered.
Remember login	If you check the **Remember login** check box, you will stay logged in until you click **Log out** in the menu (**User** > **Log out**).

Item	Description
Login	Logs you in to Silk Central (if the entered credentials are valid).

Working with Silk Performer Projects

Silk Performer is fully integrated with the test and execution functionality of Silk Central. Silk Performer projects can be integrated into Silk Central tests and directly executed through Silk Central. This allows for powerful test-result analysis and reporting. It also enables unattended testing, which means tests are run automatically by Silk Central based on pre-configured schedules.

Refer to the Silk Performer Help for details on configuring the integration of Silk Performer with Silk Central.

Silk Performer project files can be directly opened in Silk Performer from Silk Central, where scripts and settings can be edited. Edited Silk Performer projects can subsequently be checked back into Silk Central to make them available for future test executions.

Silk Central provides information on execution plan run properties during Silk Performer test executions. Use the `AttributeGet` methods to access execution plan run properties in the Silk Performer script. You can access the following properties in the script:

- `#sctm_execdef_name`
- `#sctm_execdef_id`
- `#sctm_product`
- `#sctm_version`
- `#sctm_build`
- `#sctm_keywords`
- `#sctm_test_results_dir`
- `#sctm_test_name`
- `#sctm_test_id`

Note: The term Project is used differently in Silk Performer than it is in Silk Central. A Silk Performer project, when uploaded to Silk Central, becomes the core element of a Silk Central test. Silk Central projects are high-level entities that may include multiple Silk Performer projects, tests, execution plans, and requirements.

Working with Silk Performance Explorer

Silk Performance Explorer (Performance Explorer) is used for in-depth analysis of test runs. Performance Explorer results analysis can be started directly from the **Execution** area and the **Tests** area of Silk Central through execution runs on the **Runs** page or from Performance Explorer itself. Refer to the Performance Explorer documentation for details regarding the integration of Performance Explorer with Silk Central.

The results of load-test runs in Silk Performer can also be uploaded to Silk Central and associated with tests. Refer to the *Silk Performer Help* for more details.

For additional information about the integration of Silk Central integration with Silk Performer, refer to the *Silk Performer Help* and the *Performance Explorer User Guide*.

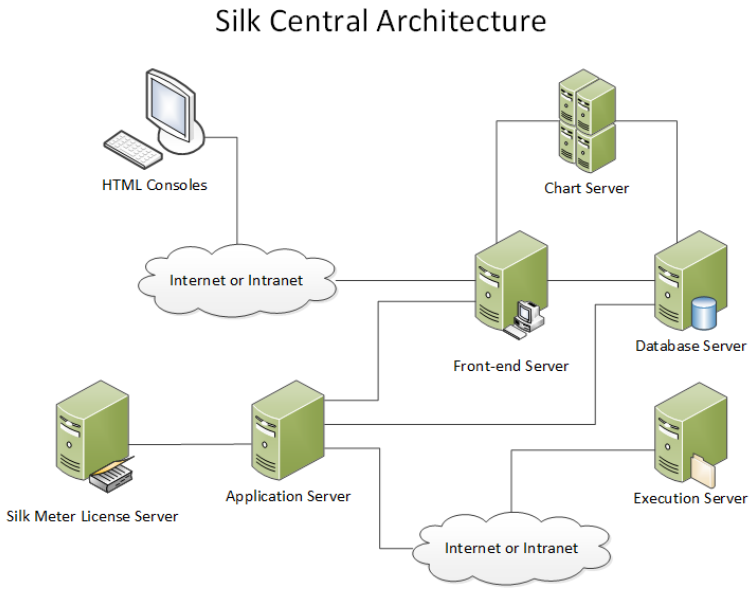
Silk Central Architecture

The following sections describe the Silk Central components.

- Overview

- Front-End Server
- Application Server
- Execution Server
- Chart Server
- Database Server
- Silk Meter License Server

Overview



Front-End Server

The front-end server is responsible for the graphical user interface. This server is based on HTML and is accessible from any Web browser, such as Internet Explorer or Firefox. A user sends an appropriate HTTP request to the front-end server and receives a login page for authentication. After successful login, the user can use the corresponding application based on the respective user rights. The front-end server can operate as a stand-alone HTTP server, or it can be attached to a Web server, such as IIS via ISAPI filter. The front-end server uses port 19120. For secure connections with SSL, the server also uses port 443.

Application Server

The application server synchronizes tasks such as the distribution of schedules, control of execution servers, and management of database configuration. These tasks require a centralized agency to ensure the consistent, reliable behavior of the application. The application server also evaluates results, saves them to the database, and sends alerts based on success conditions. The application server uses port 19122.

Execution Server

The execution server executes automated tests that are scheduled by authorized users. Users are responsible for the proper configuration of execution servers and additional resources that are required for test executions. The system allows for the installation and configuration of multiple execution servers working independently of one another. The execution server uses port 19124. For secure connections with SSL, the server also uses port 19125.

Chart Server

The chart server is used to generate charts that are viewed in reports. The system allows for the configuration of a pool of chart servers. A built-in load balancing mechanism uses the pool to distribute

chart generation. The chart server is also used to generate reports and deliver them directly to the end-user for viewing within a browser. The chart server uses port 19126.

Database Server

System persistency is implemented using a RDBMS (Relational Database Management System). The database server uses ports 1433 and 1521.

Silk Meter License Server

Silk Meter, the licensing software that accompanies Silk products, determines the Silk Central-application functionality that you may access. For more information on licensing, refer to the installation guide of the respective product. Silk Meter uses port 5461.

Agent Computers

Silk Performer and Silk Test Classic agent computers are assigned to particular Silk Performer or Silk Test Classic projects from the pool of agent computers that are available to the controller computer. In combination with Silk Central, the controller computer acts as an execution server.

Silk Performer Agents	Silk Performer agent computers host the virtual users that are run during load tests. As many agent computers as necessary can be added to a Silk Performer project so that the required quantity of virtual users can be run. Configuration of agents is done through Silk Performer. Refer to the Silk Performer documentation for details on configuring agents.
Silk Test Classic Agents	The same rules that apply to Silk Performer agents apply to Silk Test Classic agents, except Silk Test Classic agents host Silk Test Classic tests.

Silk Central, Risk-Based Testing, and Quality Goals

Often during software development, a balance must be struck between testing scope, time, and cost. One commonly used method in determining this balance is risk-based testing.

A key practice of risk-based testing is the process of categorizing test assets based off of factors important to the quality and to the end users of the application.

Based off of this categorization process, quality practitioners can determine the appropriate set of tests based off of time available and the desired goals of the quality process. Executing a subset of tests involves some amount of risk. Quantifying this risk in a relevant way ensures that the stakeholders are informed throughout the process, which is key for a successful implementation of risk-based testing.

In Silk Central, factors used for risk-based testing are completely customizable using *Quality Goals*. A quality goal can be created for any **List** type custom attribute or requirement property which are used to categorize testing assets. This allows users to define a subset of tests that need to be executed in order for the project to meet specific quality criteria. Quality goal reporting allows users to communicate to stakeholders the test planning and execution process, relevant scope, time, and quality metrics on testing assets.

Implement a Risk-Based Testing Approach by using Quality Goals

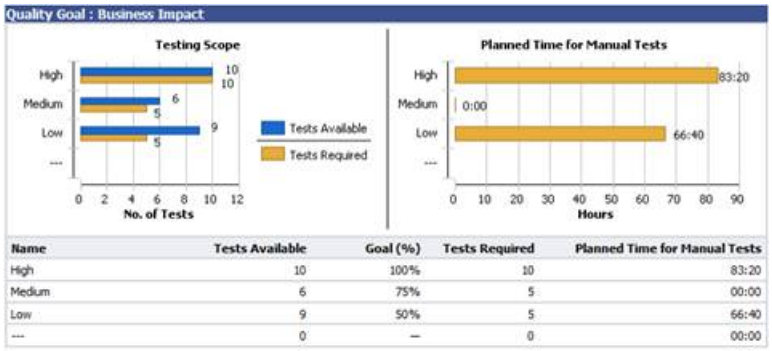
For a given project, a user wants to balance the scope of testing and time while still ensuring the application is of acceptable quality. The following steps illustrate a high-level workflow of how a user can use quality goals to implement a risk-based testing approach.

In this project, the stakeholders are interested in ensuring enough of the test bed has been executed as well as ensuring the most important requirements have been sufficiently tested. The data for the below example is also included in the `Demo` project that is included with new versions of Silk Central.

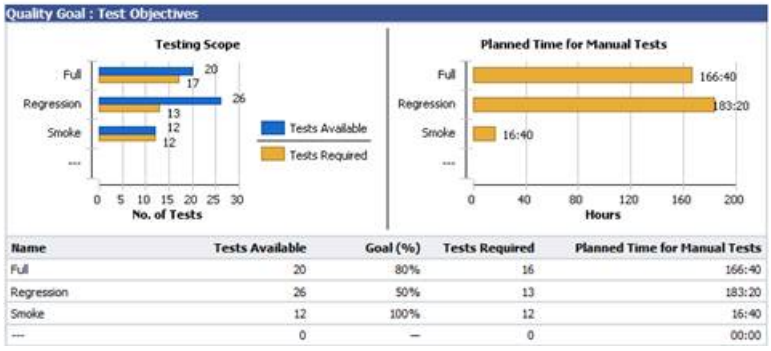
1. Select a project.

2. Create a requirement property of type **List** to capture the importance of the requirement.
   For this example, create the requirement property `Business Value` with values:
   - `Low`
   - `Medium`
   - `High`
3. Create a test attribute of type **List** to capture the type of purpose of the tests.
   For this example, create the test attribute `Level` with values:
   - `Full`
   - `Regression`
   - `Smoke`
4. Click **Tracking** > **Quality Goals**.
5. Create a new quality goal.
   For this example, create the quality goal `Business Value` for requirement property with the following **Goal %**:
   - `High-100%`
   - `Medium-75%`
   - `Low-50%`
6. Create a new quality goal.
   For this example, create the quality goal `Test Objectives` for the test attribute with the following **Goal %**:
   - `Full-80%`
   - `Regression-50%`
   - `Smoke-100%`
7. After the test assets are developed, assign the attributes/properties to the requirements and tests.
8. To determine the testing scope and ensure stakeholder agreement in the testing scope, click **Reports** > **Details View**.
9. Click **Tests** > **Status Report** > **Quality Goals Planning Report**.

   This report will show you the number and percentage of tests for each quality goal value, total planned time for manual tests, and the number of tests required to meet the goal vs. the number of test available in the project.



Name	Tests Available	Goal (%)	Tests Required	Planned Time for Manual Tests
High	10	100%	10	83:20
Medium	6	75%	5	00:00
Low	9	50%	5	66:40
---	0	--	0	00:00



Name	Tests Available	Goal (%)	Tests Required	Planned Time for Manual Tests
Full	20	80%	16	166:40
Regression	26	50%	13	183:20
Smoke	12	100%	12	16:40
---	0	--	0	00:00

10. After agreement on the plan has occurred and the project is progressing through testing execution, testing status for the Quality Goals can be easily evaluated using the **Quality Goals Execution Report**.
11. Click **Tests** > **Status Report** > **Quality Goals Execution Report**.

Name (Goal %)	Total Tests Assigned: Passed	Failed	Not Executed	Not Scheduled	Total	Tests to Meet Goal	Execution % to Goal
High (100%)	3	1	0	1	5	10	40%
Medium (75%)	1	1	0	0	2	5	40%
Low (50%)	3	1	2	0	6	5	80%

Name (Goal %)	Total Tests Assigned: Passed	Failed	Not Executed	Not Scheduled	Total	Tests to Meet Goal	Execution % to Goal
Full (80%)	5	4	0	1	10	16	56%
Regression (50%)	7	4	2	2	15	13	85%
Smoke (100%)	4	2	2	0	8	12	50%

Quick Start Tasks

This section includes the quick start tasks that are available in Silk Central. Quick start tasks are high-level overviews of the main tasks that you will likely need to perform with Silk Central. These tasks can serve as tutorials in guiding you step-by-step through the best practice usage of the core functionality of Silk Central.

Managing Shared Step Libraries - Quick Start Task

To manage your shared step libraries, you will need to perform some or all of the following tasks.

Creating a Shared Step Library

1. In the menu, click **Tests** > **Libraries of Shared Steps**.
2. In the **Libraries** tree, select the root node, which is called **Shared Steps Libraries**.
3. In the toolbar, click to create a new library.

Note: You can also right click on the root node and click **New Library**.

Creating a Shared Steps Object

You can create a shared steps object in the **Steps** page of any manual test or shared steps object.

To create a shared steps object:

1. For a shared steps object, click **Tests** > **Libraries of Shared Steps** in the menu. For a manual test, click **Tests** > **Details View** in the menu.
2. Navigate to the **Steps** page of the manual test or shared steps object that includes the steps you want to share.
3. Select the steps with `CTRL + CLICK` or `SHIFT + CLICK`.

4. Click . The **Create Shared Steps** dialog box opens.
5. Enter a name for the new shared steps object in the **Name** field.
6. Choose the location where you want to place the new shared steps object in the **Libraries** tree.
7. Click **OK**. The shared steps object is created and the selected steps are replaced by a call to the shared steps object.

Adding a Call to Shared Steps

To add a call to a shared steps object:

1. In the menu, click **Tests** > **Details View** to add the shared steps to a test or click **Tests** > **Libraries of Shared Steps** to add the shared steps to another shared steps object.
2. In the corresponding tree, click on the node to which you want to add the shared steps.
3. Click the **Steps** tab.
4. To add the shared steps to the end of the steps list, click . To insert it above the selected step, click . The **Call to Shared Steps** dialog box opens.
5. Select the shared steps node, whose steps you want to add, from the tree.

   Note: For a test, the tree displays only the libraries that are visible to the active project. For more information, see the *Visibility Page*.
6. Click **Ok**.

Editing Manual Test Steps

Edit the manual test steps of a test or a shared steps object in the **Steps** page.

To edit a manual test step:

1. For a shared steps object, click **Tests** > **Libraries of Shared Steps** in the menu. For a manual test, click **Tests** > **Details View** in the menu.
2. Select the node whose steps you want to edit in the **Tests** or **Libraries** tree.
3. Click the **Steps** tab.
4. Click on the test step that you want to edit. The details of the test step are shown in the **Edit Step** view.
5. Edit the name, action description, expected results, and step properties of the test step in the corresponding text boxes.

   Note: You can insert values from data sources into manual test steps in the form of parameters.

   Note: Silk Central supports HTML formatting and cutting and pasting of HTML content for **Description** text boxes.
6. Perform one of the following actions to finish editing the test step:
   - Click **OK and New Step** to save your changes and add a new step after the current one.
   - Click **OK** to save your changes.
   - Click **Cancel** to revert your changes.

Creating a Version

To be able to revert a set of changes you want to apply to a shared steps object or a manual test, create a version of the element.

To create a version of a shared steps object or a manual test:

1. For a shared steps object, click **Tests** > **Libraries of Shared Steps** in the menu. For a manual test, click **Tests** > **Details View** in the menu.

2. Select the shared steps object in the **Libraries** tree, or the manual test in the **Tests** tree.
3. Click in the toolbar.

   This action is only enabled if the shared steps object or the manual test was changed.

   The **Create Versions** dialog box opens.
4. *Optional:* Enter a comment on the version in the **Comment** text box.
5. Click **Ok**. The new version is shown in the **History** page.

Comparing Versions

To view the differences between two versions of a shared steps object or a manual test, compare the versions.

To compare two versions of a shared steps object or a manual test:

1. For a shared steps object, click **Tests** > **Libraries of Shared Steps** in the menu. For a manual test, click **Tests** > **Details View** in the menu.
2. Select the shared steps object in the **Libraries** tree, or the manual test in the **Tests** tree.
3. Click the **History** tab.
4. Select the two versions you want to compare with **CTRL + CLICK**.
5. Right click on the selection.
6. Select **Compare Versions**. The **Compare Versions** dialog box opens, displaying all the added, changed, and removed content.

   Note: Use the arrows to change the version numbers and compare additional versions.

Reverting to a Previous Version

To undo changes to a shared steps object or a manual test, revert to a previous version.

To revert a shared steps object or a manual test to a previous version:

1. For a shared steps object, click **Tests** > **Libraries of Shared Steps** in the menu. For a manual test, click **Tests** > **Details View** in the menu.
2. Select the shared steps object in the **Libraries** tree, or the manual test in the **Tests** tree.
3. Click the **History** tab.
4. Right-click on the version to which you want to revert the shared steps object to.
5. Click **Revert to Version <ID>**.
6. The shared steps object or manual test is reverted to the selected version and a new version is created in the **History** page. Attachments, parameters, and data sets are not reverted for manual tests.

Configuring Projects - Quick Start Task

To configure a project, you will need to perform some or all of the following tasks.

Configuring Project Settings

To customize the project settings:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Project Settings** tab to view the current settings. The **Project Settings** page opens.
3. Click **Edit** to modify the current project settings.

4. The **Edit Project Settings** dialog box displays. You can specify the following information:

Build Information File Name	Build information files contain project information, including build number, build log location, error log location, and build location. Enter the name of your project's build information file in this text box. All test executions will read the build information from this specified file.
Project Release Date	Specify the planned release date for your project.
File Extensions to ignore in Results	Specify result file types or other file types that should not be saved as results for test executions.

Note: File extensions must be separated by commas, for example, xlg, *_, res. Changes made in the **Build Information File Name** and **File Extensions to ignore in Results** fields will not effect scheduled tests. To redistribute tasks to execution servers, you must reschedule the tests, or disconnect from and reconnect to the database.

5. Click **OK** to save your project settings.

Creating Custom Attributes

To create a custom attribute:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.

2. Click the **Attributes** tab to view the list of current attributes.
3. Click **New Attribute**. The **New Attribute** dialog box displays.
4. Type a **Name** for the new attribute. This name will be displayed in list boxes when the attribute becomes available for use.
5. Type a **Description** for the new attribute.
6. Select the attribute **Type**. See the *Test Attribute and Requirement Property Types* topic for descriptions of each type of attribute.
7. Click **OK**.

Creating Filters

To create a filter:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.

2. Click the **Filters** tab to view the list of available filters.
3. Click **New Filter**. The **New Filter** dialog box appears.
4. Type a **Name** for the new filter.

   This name will be displayed in list boxes when the filter becomes available.
5. Select a **Category** from the list to make the filter available in the **Requirements**, **Tests**, or **Execution Planning** area of Silk Central.
6. *Optional:* Type a **Description** for the new filter.
7. *Optional:* Check the **Visible to other users** check box to allow other users to see the filter.
8. *Optional:* Check the **Editable by other users** check box to allow other users to edit the filter.

Note: If **Visible to other users** and **Editable by other users** are checked, the filter is public. To delete non-public (private) filters, you have to be the owner of the filter or you need the **Delete private filters of other users** permission.

9. Select a category of filter criteria from the **Selection criteria** list. The available categories depend on the general filter category you have selected.

   Note: You can combine filters by selecting **Nested Test Filter** or **Nested Requirement Filter**. Selecting one of these categories allows you to include an existing filter in your new filter.

10. Select a **Property**, **Operator**, and **Value** for the filter from the respective lists.

    Property Available properties depend on the filter category that you have selected in the previous step. Defines the property for which you are defining a filter setting. If you have selected an attribute category, the property list includes custom attributes to query against.

    Operator Specifies the filter operator. The operator depends on the property type you have selected. For example, if you have selected a property that is based on a string field type, the following operators are available:

Operator	Description
=	The string equals the defined value.
not	The string is different than the defined value.
contains	The string contains the defined value.
not contains	The string does not contain the defined value.

    Value Enter the value that you want to filter out. Depending on the property type that you have selected, values will either be strings that you can enter into the field, or a selection of predefined values that you can select from the list box.

11. *Optional:* Click **More** if you want to add more than one filter category to the new filter. Repeat this procedure to define new categories.

    Note: If you define more than one filter category, you must define whether the categories need to be fulfilled in addition to the existing categories (AND relationship), or if the filter returns true when one of the filter categories is fulfilled (OR relationship). Select either **AND** or **OR** to define the filter category relationship. You cannot define nested AND, OR relationships.

12. *Optional:* To remove filter categories, click **Fewer**. This removes the last filter category.
13. Click **OK** to save the new filter, or click **Cancel** to abort the operation.

Enabling Change Notification

To enable change notification:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.

2. Click the **Notifications** tab.
3. Click **Configure Email Notification** to open the **Configure Email Notification** dialog box.
4. If you want to be notified by email when changes are made to requirements in the currently selected project, check the **Changes on Requirements** check box.
5. If you want to be notified by email when changes are made to tests within the currently selected project, check the **Changes on Tests** check box.
6. Click **OK** to save the notification settings, or click **Cancel** to abort the operation without saving changes.

You will be notified by email about changes for which you have activated notification.

Creating Step Properties

To create a new step property:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Step Properties** tab.
3. Click **New Property**. The **New Step Property** dialog box opens.
4. Enter a name for the new property in the **Name** text box.

   Note: Step property fields are always declared as type string.
5. Click **OK** to make your property available to all manual test steps in the selected Silk Central project.

   Note: To create a step property for a library, select the library node in the **Libraries** tree and continue with the second step.

Analyzing Test Results - Quick Start Task

To analyze the results of a test, you will need to perform some or all of the following tasks.

Creating New Reports

To create a new report:

1. In the menu, click **Reports** > **Details View**.
2. In the **Reports** tree, select the folder in which you want the new report to display.

   This determines where the report is stored in the directory tree.
3. Click on the toolbar. The **Create New Report** dialog box opens.
4. Type the name of the new report.

   This is the name that is displayed in the **Reports** tree.
5. Check the **Share this report with other users** check box if you want to make this report available to other users.
6. In the **Timeout [s]** field, type the maximum time period in seconds that Silk Central should wait for SQL queries to complete.
7. From the **Default tab** list, select the tab that you want to be directed to when you select this report from one of the context-sensitive report lists.
8. Select the corresponding result type from the **Result category** list.

   This setting specifies the database table and view that is to be filtered for the report. The following result types are available:

Result Type	Description
Requirement	Returns requirements available in the **Requirements** module that meet the query criteria.
Test	Returns tests available in the **Tests** area that meet the query criteria.
Test Execution	Returns executed test results from the **Executions** area that meet the query criteria.
Execution Plan	Returns execution plans from the execution area.
Issue	Returns issues, including imported issues.
Requirement Progress Builds	Contains information on requirements progress per build so that you can see how requirements develop across builds.
Requirement Progress Days	The same as Requirement Progress Builds, but shows development on a daily basis.

Result Type	Description
Test Progress Builds	Shows how tests develop across builds.
Test Progress Days	Same as above, but shows development on a daily basis.

Each result type offers a set of selection criteria. Based on the result type you have selected, specify an appropriate **Selection criteria** for your report. These criteria typically group properties based on a view or some other intuitive grouping, for example custom properties.

9. From the **Property** list, select the property that is to be filtered on.

   For some selection criteria, properties are dynamic.

10. Select an **Operator** for the query.

    The available operators depend on the property. Example operators are =, `not`, `like`, and `not like`. Strings are always compared lowercase. Allowed wildcards for strings are "*" and "?", where * matches any characters and ? matches exactly one character.

11. Select or specify the **Value** that the query is to be filtered on.

    For date-based properties, the **Value** field is replaced with a calendar tool that you can use to select a specific date.

12. *Optional:* To add an additional query string to this report, click **More**. An existing query string can be deleted by clicking the string's **Delete** button. When multiple query strings are defined, **AND** and **OR** option buttons are displayed next to **More**. Use these option buttons to define if the queries should be considered cumulatively, or if only one query string's criteria needs to be met.

13. Click **Next** to configure report columns on the **New Report** dialog box.

14. Click **Add Columns**. The **Add Columns** dialog box lists all available report columns.

15. Select the columns that you want to have included in the report and click **OK**.

    You can select multiple columns with **Ctrl+Click**.

    Note: For test-planning reports, the list of available column names is enhanced with the column names from the *LQM_v_tests* table. For details, refer to the *Silk Central Database Model Schema*.

    The selected columns display in tabular format on the **New Report** dialog box.

16. *Optional:* Configure how each report column is to be displayed. For each column, specify a sort direction, `ascending`, `descending`, or `unsorted`, using the up/down arrows in the **Sorting** column.

17. When multiple columns are selected for sorting, a list box is displayed in the **Sort Order** column that allows you to more easily edit the column-sort order. Set these numbers as required.

18. Give each column an **Alias**.

    This is the name by which each column will be labeled in the generated report.

19. With grouping, you can take advantage of SQL aggregation features, for example when selecting a number of elements or querying a total sum of values. Check the **Group by** check box to specify that SQL group by functions are to be applied.

20. Columns that are not selected for SQL group by functions are set to aggregation by default, which means a single aggregate value is calculated. From the **Aggregation** list, select the appropriate aggregation type.

    The following types are available:

    - Count
    - Sum
    - Average
    - Minimum
    - Maximum

21. The **Actions** column enables you to move column listings up and down in the view, or to delete a column.

22. Click **Finish** to complete your new report.

Editing Report Properties

To edit the properties of a report:

1. In the menu, click **Reports** > **Details View**.
2. Select a report in the **Reports** tree.
3. Click the **Properties** tab.
4. Click **Edit**. The **Edit Report** dialog box appears.
5. Modify the **Name**, the **Description** and the **Timeout [s]** of the report as required.
6. Check the **Share this report with other users** check box if you want to make this report available to other users.
7. From the **Default tab** list, select the tab that you want to be directed to when you select this report from one of the context-sensitive report lists.
8. You can edit the report in two ways:
   - Create a simple report: Use the **Selection criteria**, **Property**, **Operator**, and **Value** lists to generate SQL queries. Click **More** to add further query strings and choose the operators **AND** or **OR** to combine the queries. Click to delete a query string.
   - Create an advanced report: If you are familiar with SQL, you may want to edit the query code. Click **Advanced Query** and modify the query code within the **Report data query** field. The **Insert placeholder** list assists you in editing the SQL queries with pre-defined function placeholders. Click **Simple** to go back to the simple mode.

   Note: If you manually edit the SQL code for the query, upon finishing, click **Check SQL** to confirm your work.
9. Click **Finish** to save your changes.

Editing Report Parameters

To edit the parameters of a report:

1. In the menu, click **Reports** > **Details View**.
2. Select a report in the **Reports** tree.
3. Click the **Parameters** tab. If the report has parameters defined for it, the parameters are listed here.
4. Click **Edit Parameters**. The **Edit Parameters** dialog box appears.
5. Edit the **Label** or **Value** of the listed parameters as required.
6. From the **Usage** list, select the usage type of the parameter:
   - Constant Value
   - Start Time
   - End Time
7. Click **OK**.

Writing Advanced Queries with SQL

Advanced reports can be created through manual SQL coding. Virtually any reporting option is available if you know the database schema. Clicking **Advanced Query** hides the query string list boxes and opens the **Report data query** field in which you can insert existing code or write new SQL code.

Restriction: The SQL statement `select top` is not supported.

One approach is to begin query-string construction using the list boxes as outlined in *Creating New Reports*. If the report criteria are valid, the equivalent SQL statement will be generated and displayed, and then move to advanced mode for further modifications.

Note: If you switch from advanced mode back to simple mode the changes you made within the code will be lost.

To write an advanced query directly in SQL:

1. In the menu, click **Reports** > **Details View**.
2. In the **Reports** tree, select the folder in which you want the new report to display.

   This determines where the report is stored in the directory tree.
3. Click on the toolbar. The **Create New Report** dialog box opens.
4. Type the name of the new report.

   This is the name that is displayed in the **Reports** tree.
5. Check the **Share this report with other users** check box if you want to make this report available to other users.
6. Type a description of the report in the **Description** field.
7. Click **Advanced Query** to open the **Report data query** field. Insert previously written code or write new code directly in the field.

   The **Insert placeholder** list assists you in editing the SQL queries with pre-defined function placeholders. For details, see *SQL Functions for Custom Reports*.

   Note: If you manually edit SQL code for the query, click **Check SQL** to confirm your work.
8. Click **Finish** to save your settings.

Customizing BIRT Report Templates

With BIRT RCP Designer (BIRT), you can customize the pre-installed report templates of Silk Central and create custom report templates. For details on using BIRT, see the *Administration* topics in this Help and the BIRT RCP Designer documentation.

To download an existing template for editing:

1. In the menu, click **Reports** > **Details View**.
2. Select a report that utilizes the BIRT Report Template.
3. Click the **Properties** tab.
4. Click **Download BIRT report template**. You receive the report data as an empty generic BIRT report template. The datasource is already configured.
5. Once you have saved the template to your local system, modify it as required.

   For detailed information on configuring BIRT report templates, see the *Administration* topics in this Help.
6. To upload the modified report template, click **Administration** > **Report Templates** in the menu and click **Upload**.

Adding Sub-Reports

To aggregate the results from multiple reports into the currently selected report, you can add sub-reports. When adding a report as a sub-report, the result columns and rows of the sub-report are concatenated to the results of the selected report.

To add a report as a sub-report:

1. In the menu, click **Reports** > **Details View**.
2. Select a report in the **Reports** tree.
3. Click the **Properties** tab.
4. Click **Add Sub-Report**.

   The **Add Sub-Report** dialog box appears.

5. From the **Reports** tree, select the sub-report you want to append to the current report.
6. Click **OK** to complete the addition of the sub-report. Sub-reports are displayed on the associated report's **Properties** page in the **Sub-Reports** section.

Viewing Reports

Because each template expects a certain data format to produce a useful graph, not all templates can be applied to all report queries. You will receive an error message if you attempt to generate a report through an incompatible report template. For example, selecting the *Four Values Per Row As Horizontal Bar* template to display the *Requirements Status Overview* report works because this particular Microsoft Excel template requires exactly the four values, `failed`, `passed`, `not executed`, and `not covered` that the report query delivers.

To generate a report:

1. In the menu, click **Reports** > **Details View**.
2. In the **Reports** tree, select the report that you want to generate.
3. Click the **Report** tab.
4. Click the link **<Click here to choose a report template>**. The **Select Report Template** dialog box displays.
5. Select the template you wish to use.
6. Click **OK** to display the report.

Displaying Charts

To display a chart:

1. In the menu, click **Reports** > **Details View**.
2. Select a report in the **Reports** tree.
3. Click the **Chart** tab to display the default chart.
4. To select a different chart type, click . The **Select Chart Type** dialog appears.
5. Select a chart type from the **Chart type** list.
6. Check the view properties that you want to apply to the chart:
   - 3D view
   - Show horizontal grid lines
   - Show vertical grid lines
   - Show legend
7. Specify how these chart options are to be saved:
   - Click the **For current user only** option to have these chart settings override the report's standard settings whenever the current user views this chart.
   - Click the **As report standard** option to have these chart settings presented to all users who do not have overriding user settings defined. This setting does not effect individual user settings.
8. Click **OK** to display the new chart type.

Note: The chart configurations you define here become the default for this report. When standard charts and graphs are not able to deliver the specific data that you require, or when they cannot display data in a required format, you can customize the appearance of queried data using the Silk Central reporting functionality. To open the current chart in a separate browser window, click at the top of the **Chart** page.

Generating Code-Change Impact Reports

To generate a code-change impact report:

1. In the menu, click **Projects** > **Project List**.
2. Select the project for which you want to analyze code-coverage data.
3. In the menu, click **Reports** > **Code Analysis**.
4. Click **Create Code Change Impact Report**. The **Select Classes for Report** dialog box appears.
5. Select a **Product** and **Version** if you want to change the pre-selected values.
6. In the **Filter** field, type criteria to filter the packages/namespaces. For example, entering the string `published` will only list packages/namespaces that contain the string `published` in their names.
7. Select a package from the **Packages/Namespaces** list.

   Use **Ctrl+Click** or **Shift+Click** to select multiple packages/Namespaces.

   The classes that are available in the selected package/namespace are displayed in the **Classes** list.
8. In the **Classes** list, select a class that you want to have included as a source in your report.

   Use **Ctrl+Click** or **Shift+Click** to select multiple classes.
9. Click **Add**. The selected classes are added to the **Selected classes** list.
10. Repeat the preceding steps until you have added all required classes to the **Selected classes** list.

    You can remove classes from the **Selected classes** list by selecting entries and clicking **Remove** or by clicking **Remove All**.
11. Select a report from the **Select report** list.
12. Click **OK** to generate the report.

Managing Requirements - Quick Start Task

To manage your requirements with Silk Central, you will need to perform some or all of the following tasks.

Creating Requirements

To create a new requirement:

1. In the menu, click **Requirements** > **Details View** .
2. In the **Requirements** tree, select a requirement. The newly created requirement will be placed on the same hierarchical level.
3. Click (**New Requirement**) in the toolbar. The **New Requirement** dialog box appears.
4. Type a **Name** and a **Description** for the requirement.

   Note: Silk Central supports HTML formatting and cutting and pasting of HTML content for description fields.
5. *Optional:* Uncheck the **Inherit from parent** check boxes. In this case the child requirement will not inherit the properties from the parent requirement. By default, all check boxes are checked.

   Note: In the **Details View** on the **Properties** page and in the **Document View**, inherited properties are marked with asterisks (*).
6. Select the appropriate **Priority**, **Risk**, and **Reviewed** status from the lists.
7. If custom requirements were defined, they are listed below the **Reviewed** list. Type in the corresponding field any custom property data that you want to track with this requirement.
8. To finish creating a new requirement:

   - Click **OK** to create the requirement and to close the dialog box.
   - Click **OK and New Requirement** to create the requirement and to keep the dialog box open to enter data for another requirement.
   - Click **OK and New Child Requirement** to create the requirement and to keep the dialog box open to enter data for a child requirement.

Attaching a File to a Requirement

To attach a file to a requirement:

1. In the menu, click **Requirements** > **Details View** .
2. Select the requirement in the **Requirements** tree.
3. Click the **Attachments** tab.

   When requirements management integration has been enabled between a Silk Central project and a Caliber project, the **Attachments** page includes an **Open Caliber** button, which enables you to manage requirement attachments directly in Caliber.
4. Click **Upload File**. The **Upload File** dialog box appears.
5. Click **Browse** and select the file that you want to attach from your local file system.
6. Type a **Description** for the attachment.
7. Click **OK**. The attachment is uploaded to the server and associated with the selected requirement.

Note: Attaching files to a requirement may not work in Mozilla Firefox. Mozilla Firefox requires usage of three slashes, for example `file:///`, for a file link, while other browsers require only two, for example `file://`. Aditionally, Mozilla Firefox includes a security feature blocking links from remote files to local files and directories. For more information, see *http://kb.mozillazine.org/Firefox_:_Issues_:_Links_to_Local_Pages_Don't_Work*

Attaching a Link to a Requirement

To attach a link to a requirement

1. In the menu, click **Requirements** > **Details View** .
2. Select the requirement in the **Requirements** tree.
3. Click the **Attachments** tab.

   When requirements management integration has been enabled between a Silk Central project and a Caliber project, the **Attachments** page includes an **Open Caliber** button, which enables you to manage requirement attachments directly in Caliber.
4. Click **Attach Link**. The **Attach Link** dialog box appears.
5. Type the URL in the **Link** field.
6. Type a **Description** for the attached link.
7. Click **OK**. The link is associated with the selected requirement.

Generating Tests from Requirements Details View

You can generate tests directly out of the **Requirements** tree and assign tests to specific requirements. The **Requirements** tree serves as a template for the test folder/test structure of the new **Tests** tree.

To generate a new test from the **Details View**:

1. In the menu, click **Requirements** > **Details View** .
2. Right-click the requirement or project node that you want to convert into a test and select **Generate Tests**. The **Generate Tests from Requirements** dialog box appears. This dialog box enables you to specify whether the leaves, which means the lowest-level nodes, of the selected requirements sub-tree should be converted into tests or test folders and whether the tree should be generated into a new test container or an existing container.
3. Enter a name for the new test container in the **Enter Name** field and select a product from the **Select Product** list to create the container within the active Silk Central project.

   The **Select Product** list is populated with the products that are configured by a project manager. For detailed information, see the *Administration* topics in this Help or ask your project manager.

4. If you have defined a source control profile, select the source control profile you want to use for managing the test sources from the **Select Source Control Profile** list.

   For detailed information on source control profiles, see *Source Control Profiles* or ask your Silk Central administrator.
5. To include all child requirements of the selected requirement in the test, check the **Include Child Requirements** check box.

   The check box is checked by default.
6. To have the new tests automatically assigned to the requirements from which they are created, check the **Assign newly generated tests to Requirements** check box.

   If this option is not selected, tests must be manually associated with requirements.

   Note: This option is not available when checking **Generate test folders from requirement tree leaves**.
7. Click **OK** to create the test.

   The new test has the same structure as the **Requirements** tree.
8. A message box displays. Click **Yes** to view the test in the **Tests** area, or click **No** to remain in the **Requirements** area.

Creating Filters

To create a filter:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Filters** tab to view the list of available filters.
3. Click **New Filter**. The **New Filter** dialog box appears.
4. Type a **Name** for the new filter.

   This name will be displayed in list boxes when the filter becomes available.
5. Select a **Category** from the list to make the filter available in the **Requirements**, **Tests**, or **Execution Planning** area of Silk Central.
6. *Optional:* Type a **Description** for the new filter.
7. *Optional:* Check the **Visible to other users** check box to allow other users to see the filter.
8. *Optional:* Check the **Editable by other users** check box to allow other users to edit the filter.

   Note: If **Visible to other users** and **Editable by other users** are checked, the filter is public. To delete non-public (private) filters, you have to be the owner of the filter or you need the **Delete private filters of other users** permission.
9. Select a category of filter criteria from the **Selection criteria** list. The available categories depend on the general filter category you have selected.

   Note: You can combine filters by selecting **Nested Test Filter** or **Nested Requirement Filter**. Selecting one of these categories allows you to include an existing filter in your new filter.
10. Select a **Property**, **Operator**, and **Value** for the filter from the respective lists.

    Property Available properties depend on the filter category that you have selected in the previous step. Defines the property for which you are defining a filter setting. If you have selected an attribute category, the property list includes custom attributes to query against.

    Operator Specifies the filter operator. The operator depends on the property type you have selected. For example, if you have selected a property that is based on a string field type, the following operators are available:

Operator	Description
=	The string equals the defined value.
not	The string is different than the defined value.
contains	The string contains the defined value.
not contains	The string does not contain the defined value.

Value Enter the value that you want to filter out. Depending on the property type that you have selected, values will either be strings that you can enter into the field, or a selection of predefined values that you can select from the list box.

11. *Optional:* Click **More** if you want to add more than one filter category to the new filter. Repeat this procedure to define new categories.

Note: If you define more than one filter category, you must define whether the categories need to be fulfilled in addition to the existing categories (AND relationship), or if the filter returns true when one of the filter categories is fulfilled (OR relationship). Select either **AND** or **OR** to define the filter category relationship. You cannot define nested AND, OR relationships.

12. *Optional:* To remove filter categories, click **Fewer**. This removes the last filter category.
13. Click **OK** to save the new filter, or click **Cancel** to abort the operation.

Creating Advanced Filters

Advanced custom filters enable you to combine simple filters to create complex filters that apply multiple filter criteria simultaneously.

To create an advanced custom filter:

1. In the menu, select the appropriate area: **Requirements**, **Tests**, or **Execution Planning**.
2. Click (**New Filter**) in the toolbar. The **New Filter** dialog box appears.
3. If necessary, click **Advanced** to show the whole dialog box.
4. Click **More** to display a second set of filter-parameter fields with which you can define a second set of filter parameters.
5. Select a logical operator for the application of the filtering queries. For example, with the operator `and` filtered elements must meet both sets of criteria and with the operator `or` filtered elements must meet one, but not both, of the criteria sets.
6. To delete a filter-parameter string, click .
7. To display additional filter-parameter fields and create additional filter queries, click **More**. To remove excess filter-parameter sets, click **Fewer**.

Managing Test Executions - Quick Start Task

To manage the execution of a test, you will need to perform some or all of the following tasks.

Creating Execution Plans

To create an execution plan:

1. In the menu, click **Execution Planning** > **Details View**.
2. Select a folder or the project node in the **Execution Plans** tree.
3. Click (**New Child Execution Plan**) on the toolbar or right-click the folder, testing cycle, or node and click **New Child Execution Plan**. The **New Execution Plan** dialog box appears.
4. Type a name and description for the execution plan.

Note: Silk Central supports HTML formatting and cutting and pasting of HTML content for **Description** text boxes.

5. Select a test container from the **Test Container** list.

   Note: You can assign only one test container to an execution plan. Only tests from this test container can be executed.

   The latest version and build that are defined within the product that the container belongs to are populated automatically in the **Version** and **Build** lists.
6. Select a product **Version** and **Build** from the lists.

   These are used when a new run of this execution plan is started. Alternatively, you can check the **Read from Build Information File** check box. In this casethe version and build are read from the build information file on the application server at the beginning of each run. If a build information file is available on the execution server, this file is used by default for the test run, overriding the settings on the **New Execution Plan** dialog box.
7. Select a **Priority** for the execution plan from the list.

   The priority parameter specifies the lowest priority that is considered in the data.
8. *Optional:* In the **Source Control Label** field you can specify that earlier versions of automation files, instead of the latest versions, are fetched from the source control system.

   Note: The **Source Control Label** property is only enabled if the associated test container uses a source control profile that supports versioning.
9. Click **OK** to update the **Execution** tree with the newly created execution plan.

Manually Assigning Tests to Execution Plans

The tests that are assigned to the selected execution plans are listed on the **Assigned Tests** page.

To manually assign tests to an execution plan:

1. In the menu, click **Execution Planning** > **Details View**.
2. Select the execution plan to which you want to assign the selected tests.
3. Click the **Assigned Tests** tab.
4. Click the **Manual assignment** option. All tests of the test container which is associated with the selected execution are displayed in the **Tests** tree. If you have created a test filter, you can select it from the filter list above the **Tests** tree. To create a new test filter, click **Tests** in the menu and click (**New Filter**) in the toolbar.
5. In the tree, click on the left of the test that you want to assign to the execution plan.

   Clicking the assign arrow of a folder or the top-level container assigns all child tests of that parent to the selected execution plan.

   Tip: Right-click a node to expand and collapse it.

Assigning Tests from Grid View to Execution Plans

The tests that are assigned to the selected execution plans are listed on the **Assigned Tests** page.

To assign one or more tests from **Grid View** to one or more execution plans:

1. In the menu, click **Tests** > **Grid View** .
2. Select the tests you want to assign to execution plans.

   You can select multiple tests with **Ctrl+Click** or **Shift+Click**.
3. Right-click the selected tests and click **Save Selection**.
4. In the menu, click **Execution Planning** > **Details View**.

5. Select the execution plan to which you want to assign the selected tests.
6. Click the **Assigned Tests** tab.
7. Click **Assign Saved Selection**.

Note: Only tests that reside in the test container of the execution plan are inserted. You can insert the selected tests to more than one execution plans. You can not insert them into requirements in a different project. The selection persists until you make a different selection or close Silk Central.

Assigning Tests to Execution Plans through a Filter

The tests that are assigned to the selected execution plans are listed on the **Assigned Tests** page.

You have to create a filter with the category **Test** before you can perform the following steps. See *Creating Filters* for details. Alternatively select an existing filter.

To use a filter to assign one or more tests to an execution plan:

1. In the menu, click **Execution Planning** > **Details View**.
2. Select the execution plan to which you want to assign tests.
3. Click the **Assigned Tests** tab.
4. Click the **Assignment by filter** option.
5. Choose a filter from the list.

Note: If you assign tests to an execution plan in **Tests** > **Grid View** , the test assignment type is automatically set to **Manual Assignment**, but the previously-filtered tests remain in the **Assigned Tests** page.

Creating a Custom Schedule

To create a custom schedule for a selected execution plan, folder, or configuration suite:

1. In the menu, click **Execution Planning** > **Details View**.
2. Select the execution plan, folder, or configuration suite for which you want to configure a custom schedule.

   Note: To save an edited version of a global schedule as a custom schedule, click **Edit** while the global schedule is selected in the list box. This enables you to edit the global schedule and save the result as a custom schedule.
3. Click the **Schedule** tab.
4. Click the **Custom** option to enable the scheduling controls.
5. Click **Edit**.
6. Click next to the **From** field and use the calendar tool to specify the time and date when the execution schedule should begin.
7. Specify the **Interval** at which the tests should be executed.
8. In the **Run** section, specify when the schedule should end.

   Select one of the following options:

   - Click **Forever** to define a schedule with no end.
   - Click **n Time(s)**.
   - Click next to the **until** field and use the calendar tool to specify the time and date when the execution schedule should end.
9. *Optional:* Click **Add Exclusion** to define times when scheduled elements should not be executed.
10. *Optional:* Click **Add Definite Run** to define times when unscheduled executions should be executed.
11. Click **Save** to save your custom schedule.

Configuring Setup and Cleanup Executions

To define a test as a setup or cleanup test:

1. In the menu, click **Execution Planning** > **Details View**.
2. Click the execution plan for which you want to configure a setup or cleanup test.
3. Click the **Setup/Cleanup** tab.
4. Choose between a setup or cleanup test:
   - To define a setup test, click **Edit** in the **Setup Test** section. The **Edit Setup Test** dialog box appears.
   - To define a cleanup test, click **Edit** in the **Cleanup Test** section. The **Edit Cleanup Test** dialog box appears.
5. Select a test in the **Tests** tree.
6. Click **OK**.

The configured test displays in the corresponding section of the **Setup/Cleanup** page.

Adding Dependent Execution Plans

To add a dependent execution plan:

1. In the menu, click **Execution Planning** > **Details View**.
2. Select the execution plan that will act as the master execution plan.
3. Click the **Dependencies** tab.
4. Click **Add dependent Execution Plan**. The **Add dependent Execution Plan** dialog box appears.
5. From the **Condition** list, select the condition that is to trigger the dependent execution plan.
   - `Any`
   - `Passed`
   - `Failed`
   - `Not Executed`

   The `Any` status means that the dependent test execution will trigger no matter what the status of the previous test execution is.
6. Select an execution plan from the **Execution Plans** tree.
7. Specify where the dependent execution plan is to be deployed.

Option	Description
As specified in the dependent Execution Plan	Automated tests assigned to the dependent execution plan will be executed on the execution server specified for the dependent execution plan on the **Deployment** page. Manual tests assigned to the dependent execution plan will be assigned to the users specified for the dependent execution plan on the **Deployment** page.
Same as <selected execution plan's execution server>	Automated tests assigned to the dependent execution plan will be executed on the execution server specified for the master execution plan on the **Deployment** page. Manual tests assigned to the dependent execution plan will be assigned to the users specified for the master execution plan on the **Deployment** page.
Specific: Execution Server/ Manual Tester	Select a pre-configured execution server and/or a manual tester from the list boxes. Automated tests assigned to the dependent execution plan will be executed on the specified execution server. Manual tests assigned to the dependent execution plan will be assigned to the specified manual tester. If only a specific manual tester is defined and no server, only manual tests will be

Option	Description
	executed. If only a specific execution server is defined and no manual tester, only automated tests will be executed.

8. Click **OK** to create the dependency.

Note: Silk Central will not allow you to create cyclical execution dependencies. You can select conditions to fulfill for manual tests. For example, if the selected condition is `Failed` and all manual tests passed, but some automated tests failed, only automated tests assigned to the dependent execution plan are executed.

Assigning Keywords to Execution Plans

To assign keywords to execution plans:

1. In the menu, click **Execution Planning** > **Details View**.
2. In the **Execution Plans** tree, select the execution plan that you want to edit.
3. Click the **Deployment** tab.
4. In the **Execution Environment** section of the page, click **Edit**. The **Assign Keywords** dialog box appears. All keywords that have been defined for your execution environment are listed here.

Note: The default reserved keywords for each execution server, `#<execution name>@<location name>`, are included in the list.

5. Select a keyword in the **Select or enter keywords** list or directly enter a new keyword.

   Select multiple keywords with **Ctrl+Click** or **Shift+Click**.

Tip: The **Select or enter keywords** field is auto-complete enabled. When you enter alphanumeric characters, the field is dynamically updated with an existing keyword that matches the entered characters. The field is disabled when multiple keywords are selected in the **Select or enter keywords** or **Assigned keywords** lists.

Tip: If you only have a few execution servers and do not require hardware provisioning, it might be enough to use only the default, reserved keywords that are created for each execution server. In such cases, it is not necessary that you select additional keywords.

6. Click **>** to move the keyword into the **Assigned keywords** list. Click **<** to remove keywords from the list. You can also double-click keywords to move them from the one list to the other.

Note: The execution servers that match the assigned keywords are listed below in the dynamically-updated **Matching execution servers** list. This list updates each time you add or remove a keyword. Click on the name of an execution server in the list to access the execution servers in **Administration** > **Execution Servers** .

7. Click **OK** to save the keywords and close the **Assign Keywords** dialog box.

Starting Execution Plans

To run an execution plan independent of a schedule:

1. In the menu, click **Execution Planning** > **Details View**.
2. In the **Execution Plans** tree, select the execution plan, folder, or configuration suite that you want to execute.
3. Click (**Run**) on the toolbar. The **Run** dialog box appears.
4. Define which tests you want to execute in the **Run** dialog box.
5. If the execution plan does not contain pending manual tests, the **Go To Activities** dialog box displays. Click **Yes** to view the details of the execution plan runs in the **Activities** page, or click **No** if you want to remain on the current Web page.

Note: Check the **Don't show this dialog again (during this login session)** check box if you do not want to be asked about switching to the **Activities** page again in the future. This setting will be discarded when you log out of Silk Central.

Viewing Test Run Details

To view the details of a test run:

1. In the menu, click **Execution Planning** > **Details View**.
2. Select an execution plan in the **Execution Plans** tree.
3. Click the **Runs** tab.
4. In the **Test Runs** grid at the bottom, click the **Run ID** of the test for which you want to see details. The **Test Run Results** dialog box appears.
5. Click the **Details** tab.

Managing Tests - Quick Start Task

To organize your tests, you will need to perform some or all of the following tasks.

Creating Tests

To create a new test:

1. In the menu, click **Tests** > **Details View** .
2. Select a container or folder node in the **Tests** tree where you want to insert a new test.
3. Click (**New Child Test**) on the toolbar or right-click within the tree and choose **New Child Test**.

   A new test node is appended to the tree view, and the **New Test** dialog box appears.
4. Type a name and description for the test.

   Note: Silk Central supports HTML formatting and cutting and pasting of HTML content for **Description** text boxes.
5. Select the test type from the **Type** list.
6. Click **Next** and proceed to the appropriate topic for the selected test type in *Configuring Test Properties*.

Note: The well-defined public API of Silk Central enables you to implement a proprietary solution that meets your automated test needs. Silk Central is open and extensible to any external tool that can be invoked from a Java implementation or through a command-line call.

Note: Throughout the test configuration process and across all test types, **Inherit from parent** check box options are provided where applicable, enabling you to accept settings of any existing parent entity.

Editing Tests

To edit a test:

1. In the menu, click **Tests** > **Details View** .
2. Select the test or the test package that you want to edit.
3. Click (**Edit**) on the toolbar.

   You can also click the **Properties** tab and click **Edit** or right-click the test or test package and select **Edit**.

   The **Edit Test** dialog box appears.

Note: Silk Central supports HTML formatting and cutting and pasting of HTML content for **Description** text boxes.

4. Edit the name and description of the selected test.

   If the selected test is a test package, the **Update Package Structure on Result** check box is available. Check the **Update Package Structure on Result** check box if you want to update the structure of the test package according to the results of the test execution run.
5. Configure the properties of the test or the test package according to the test type as described in *Configuring Test Properties*.

Creating a Test Package

To create a new test package out of a third-party test:

1. Run the test once to create the `output.xml` file, which contains the structure of the test package.

   For additional information on executing a test, see *Executing Individual Tests*.
2. In the menu, click **Tests** > **Details View** .
3. In the **Tests** tree, right-click the test and choose **Convert to Test Package**. The selected test is converted to a hierarchy representing the structure of the last execution result.

Creating Data-Driven Tests

To create a data-driven test:

1. In the menu, click **Tests** > **Details View** .
2. Create a new test.

   For more information, see *Creating Tests*.
3. Click the **Properties** tab of the newly created test.
4. Click (**Edit**) next to **Data-driven Properties**. The **Data-driven Properties** dialog box appears.
5. Select a preconfigured data source from the **Data Source** list.

   Note: Your data source may contain up to 100 rows. If it contains more than 100 rows, you need to enter a query on the **Data-driven Properties** dialog box that returns 100 rows at most. This prevents generating more than 100 tests out of one data source.
6. Click **Next** to continue.
7. Select a data set from the **Data Set** list.

   In the case of Excel data sources, this is a worksheet name. In the case of database data sources, this is a table name.
8. Check the **Each data row is a single test** check box to have each row in your data set considered to be a separate test, or do not check this check box to create a single test for all data rows of your data set.
9. *Optional:* Enter a SQL query in the **Filter query** field to filter your data set based on an SQL-syntax query.

   Note: Only simple `WHERE` clause queries are supported.
10. Check the **Enable data-driven properties** check box to enable data-driven functionality.
11. Click **Finish** to save your settings.

Note: Data-driven property settings are visible in the lower portion of each test's **Properties** page.

Note: To use the data-driven test functionality of Silk Central with Silk Performer scripts, data sources with column names matching the corresponding Silk Performer project attributes must be used in conjunction with `AttributeGet` methods.

Assigning Attributes to Tests

To assign an attribute to a test:

1. In the menu, click **Tests** > **Details View** .
2. Select the test to which you want to assign an attribute.
3. Click the **Attributes** tab.
4. Click **Add Attribute**. The **Add Attributes** dialog box appears.
5. Click ✚ (**Add Attribute 'Importance'**) in the **Add** column of the attribute that you want to assign. Based on the attribute type you have selected, an **Edit Attribute** dialog box appears, where you can specify which of the available attribute values you want to assign to the test.
6. Select an attribute value and click **OK** to assign the attribute to the test.

Adding Predefined Parameters to Silk Performer Tests

To add a predefined parameter to a test:

1. In the menu, click **Tests** > **Details View** .
2. In the **Tests** tree, select the test node to which you want to add a predefined parameter.
3. Click the **Parameters** tab.
4. Click **Add Predefined Parameter**.

   Note: The **Add Predefined Parameter** button is only available for Silk Performer tests, when the **Project** property is already defined.

   The **Add Predefined Parameter** dialog box appears, which lists all of the project attributes that are available in the project file.
5. To add any of the listed parameters, click the corresponding add icon.
6. On the dialog box that appears, specify the actual value for the parameter.
7. Click **Save** to add the parameter to the active **Tests** tree node.

Creating Filters

To create a filter:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Filters** tab to view the list of available filters.
3. Click **New Filter**. The **New Filter** dialog box appears.
4. Type a **Name** for the new filter.

   This name will be displayed in list boxes when the filter becomes available.
5. Select a **Category** from the list to make the filter available in the **Requirements**, **Tests**, or **Execution Planning** area of Silk Central.
6. *Optional:* Type a **Description** for the new filter.
7. *Optional:* Check the **Visible to other users** check box to allow other users to see the filter.
8. *Optional:* Check the **Editable by other users** check box to allow other users to edit the filter.

   Note: If **Visible to other users** and **Editable by other users** are checked, the filter is public. To delete non-public (private) filters, you have to be the owner of the filter or you need the **Delete private filters of other users** permission.
9. Select a category of filter criteria from the **Selection criteria** list. The available categories depend on the general filter category you have selected.

Note: You can combine filters by selecting **Nested Test Filter** or **Nested Requirement Filter**. Selecting one of these categories allows you to include an existing filter in your new filter.

10. Select a **Property**, **Operator**, and **Value** for the filter from the respective lists.

Property Available properties depend on the filter category that you have selected in the previous step. Defines the property for which you are defining a filter setting. If you have selected an attribute category, the property list includes custom attributes to query against.

Operator Specifies the filter operator. The operator depends on the property type you have selected. For example, if you have selected a property that is based on a string field type, the following operators are available:

Operator	Description
=	The string equals the defined value.
not	The string is different than the defined value.
contains	The string contains the defined value.
not contains	The string does not contain the defined value.

Value Enter the value that you want to filter out. Depending on the property type that you have selected, values will either be strings that you can enter into the field, or a selection of predefined values that you can select from the list box.

11. *Optional:* Click **More** if you want to add more than one filter category to the new filter. Repeat this procedure to define new categories.

Note: If you define more than one filter category, you must define whether the categories need to be fulfilled in addition to the existing categories (AND relationship), or if the filter returns true when one of the filter categories is fulfilled (OR relationship). Select either **AND** or **OR** to define the filter category relationship. You cannot define nested AND, OR relationships.

12. *Optional:* To remove filter categories, click **Fewer**. This removes the last filter category.
13. Click **OK** to save the new filter, or click **Cancel** to abort the operation.

Assigning Requirements to Tests

To manually assign requirements to tests:

1. In the menu, click **Tests** > **Details View** .
2. In the **Tests** tree, select the test to which you want to assign requirements.
3. Click the **Assigned Requirements** tab.

Note: If you have created a requirements filter, you can select it from the filter list above the **Requirements** tree. To create a new requirements filter, click **Requirements** > **Details View** in the menu and click on the toolbar.

All requirements that are available for assignment are displayed in the **Requirements** tree.

4. Click **Assign All Filtered** to assign all filtered requirements to the selected test, or click to the left of a requirement to assign a single requirement to the selected test. Assigning all filtered requirements is only enabled if a filter is selected and if you have either **Manage requirements** or **Manage tests and executions** permission.

Note: Newly generated tests can automatically be assigned to the requirements from which they are generated by checking the **Assign newly generated tests to requirements** check box on the **Generate Tests from Requirements** dialog box. This is the default behavior.

Attaching Files to Test Elements

To attach a file to a test element:

1. In the menu, click **Tests** > **Details View** .
2. In the **Tests** tree, select a container, folder, or test.
3. Click the **Attachments** tab.
4. Click **Upload File**. The **Upload File** dialog box appears.
5. Click **Browse** to select a file from your local file system.
6. *Optional:* Enter a **Description** for the attachment.
7. Click **OK** to upload the attachment to the server and associate it with the selected element.

Note: Attaching files to a test element may not work in Mozilla Firefox. Firefox requires usage of three slashes, for example `file:///`, for a file link, while other browsers require only two, for example `file://`. Additionally, Firefox includes a security feature blocking links from remote files to local files and directories. For more information, see *http://kb.mozillazine.org/Firefox_:_Issues_:_Links_to_Local_Pages_Don't_Work*.

Attaching Links to Test Elements

To attach a link to a test element:

1. In the menu, click **Tests** > **Details View** .
2. In the **Tests** tree, select a container, folder, or test.
3. Click the **Attachments** tab.
4. Click **Attach Link**. The **Attach Link** dialog box appears.
5. Type the URL in the **Link** field.
6. *Optional:* Type a **Description** for the attached link.
7. Click **OK** to associate the link with the selected element.

Dashboard

The dashboard in Silk Central is your personal starting area. You can customize it by adding and arranging various panels, which give you the information you need for your daily work.

When you log in to Silk Central for the first time, the dashboard shows just the **Introduction** panel. On the top, your last login date and time is displayed. You can quickly **Continue working in your last visited area** by clicking this link.

Click the buttons on the top, to perform the following actions:

- Click **Add Panel** to add further panels to the dashboard.
- Click **Change Layout** to change the layout of the dashboard.
- Click **Reset Dashboard** to set the dashboard to the default view. All the panels you added and your customized settings are removed.

To arrange your panels, click on the header of a panel and drag it to the desired position.

Click the buttons in the header of a panel to perform the following actions:

- Click to remove the panel from the dashboard.
- Click to configure the settings of the panel.
- Click to save the content of the panel as a PDF.
- Click to print the content of the panel.

You need certain permissions to view or edit the content of the different panels.

Adding Panels to the Dashboard

To add a panel to the dashboard:

1. In the menu, click **Home** > **My Dashboard**.
2. Click **Add Panel** on the top left. The **Add Panel** dialog box appears, listing the available panels along with a short description for each panel.
3. Select a panel.
4. Click **OK**.
5. If required, select a **Project** and a **Time Span** for the panel. Select **<Use current project>** for the panel to always display the data of the currently active project.
6. Click **OK**.

For most panels, you need to configure a project, as the panel will only show data for a certain project. You can add several panels to show appropriate data for other projects side-by-side, or configure **<Use current project>** for the panel to always display the data of the currently active project. Click (**Configure**) in the header of a panel to configure a different project. You need certain permissions to view or edit the content of the different panels.

Dashboard Panels

For most panels, you need to configure a project, as the panel will only show data for a certain project. You can add several panels to show appropriate data for other projects side-by-side, or configure **<Use current project>** for the panel to always display the data of the currently active project. Click (**Configure**) in the header of a panel to configure a different project. You need certain permissions to view or edit the content of the different panels.

You can add the following panels to your dashboard:

Panel	Description
Assigned Issues	This panel shows all issues (that are assigned to a test) of the selected project. If you click the external ID, the issue opens in the external issue tracking system.
Custom Information	This panel shows customizable information about a certain project. Users with the **Manage projects** permission can add content like text, images or hyperlinks to the panel. Click **Edit Content** to open the HTML editor. Users without the **Manage projects** permission will just see the content. The panel can be used to show news, descriptions or any other kind of information relevant to the project.
Introduction	This panel gives you a quick introduction to Silk Central. Click the links under **What's New?** to get additional information about the latest features of Silk Central. You can also join the **Micro Focus Community** or contact the **Micro Focus SupportLine**.
Issue Life Cycle	This panel shows the number of **Open**, **Fixed**, **Verified**, **Closed** and **Deferred** issues for a defined issue tracking profile. Select a **Product** from the list. To define an issue tracking profile, click **Issues** in the menu, click **Issue Tracking Integrations** and click **New Profile**. The panel will only show data, if there is a profile defined.

Panel	Description
Issues Created per Tester	This panel shows the number of issues created by testers as a bar graph. When printed or downloaded as a PDF, the numbers will be shown in a table as well.
Manual Tests Assigned to Me	This panel shows all tests of the selected project that were assigned to you. If the manual test execution is organized with the help of testing cycles, the list also includes all tests that are assigned to **No specific tester** on the **Manual Execution Planning** page. However, this is only true for testing cycles you are assigned to as a tester. It is a typical teamwork scenario that testers decide on their own which test to execute. If the manual test execution is organized with the help of execution plans, the list also includes the tests from all execution plans that have no tester assigned. Click (**Continue Manual Test**) to open the **Manual Testing** window. Click (**View Manual Test Results**) to open the view and see all data and attachments about the test. Click to get detailed information about the **Test**, the **Execution Plan** or the **Execution Plan Parent**. Right click a test and click to download a manual test (in Excel format) to execute it offline (multiple tests can be selected with **Ctrl+Click** or **Shift+Click**). After you execute the test, click the **Upload Offline Manual Test Results** button to upload the results. If you start a testing cycle (on the **Manual Execution Planning** page) before its start date, the tests of this testing cycle already display in the panel. You can make those tests invisible in the panel until the start date is reached: Click in the header of the panel and check **Hide future testing cycles**.
Offline Manual Testing Overview	This panel shows the tests that are downloaded by testers and allows the Test Manager to abort offline executions to free the license.
Planned vs. Actual Execution Time	This panel shows if the testers of a testing cycle are on schedule with the test execution. If the actually used time plus the remaining planned time is greater than the capacity, the testing cycle is on risk to be not finished on time.
Quality Goal Progress	This panel shows a graph with two bars for each value of the selected quality goal. The upper bar shows the number of tests that must be executed to meet the quality goal. The lower bar shows the number of the **Passed**, **Failed**, **Not Executed**, and **N/A** (not available) tests with that quality goal value. If the lower bar is shorter than the upper bar, too few tests are assigned to execution plans. This means that the quality goal cannot be reached. Select a **Quality Goal** from the list.
Report Subscription	This panel displays the results of a report subscription. The report subscription must already be defined and you

Panel	Description
	need to select **Provide for dashboard and external access** from the **Edit Subscription** dialog box to make it available.
Requirements Coverage Status	This panel shows the requirement coverage of the selected project, broken down into **Passed**, **Failed**, **Not Executed**, and **Not Covered** requirements. Click to go to the **Requirements Document View**.
Status of Currently Running Manual Tests	This panel shows the status of all currently running manual tests in the specified project. Test managers are able to see which tests are currently blocked and they can monitor the status of already executed tests in running executions.
Testbook	This panel shows you real-time updates about all activities that take place during manual testing. Activities that are logged in the **Testbook** are starting and finishing tests and editing running testing cycles. For more information, see *Testbook*.
Testing Cycle Progress	This panel shows a burn-up chart of **Passed**, **Failed**, **In Progress**, and **Not Executed** tests for the defined testing cycle. It also shows the milestones (as diamonds), if you have specified any. Select a **Testing Cycle** from the list.
Testing Cycle Result Summary	This panel shows the status of the selected testing cycle and the progress status of the individual testers that are assigned to the testing cycle. The bars show in the following order: the number of **Tests failed**, **Tests remaining**, and **Tests passed**. The tester with the most failed tests displays on the top of the list. The numbers to the right of the bars show the **Tests completed** (left number) and the **Tests assigned** (right number). **No specific tester** is treated and ordered like all other testers. Click to go to the **Test Assignment** view of the **Manual Execution Planning** page.
Testing Cycle Timeline	This panel shows all testing cycles of the selected project as bars on a timeline. When you click on a bar, you are directed to the **Manual Execution Planning** page. The bars have different colors, depending on the current status of the testing cycle: blue (in progress), orange (not yet started), gray (finished). Move your mouse over the bars to get detailed information about the testing cycle.
Testing Progress Across Testing Cycles	This panel shows the time in hours for the **Planned** tests (visualized by a line) and for the **In Progress** and the **Completed** tests (both visualized by stacked areas). The panel helps a test manager to predict if the testing team will be able to finish the tests in time. The start date of the chart is the start date of the first testing cycle. The end date of the chart is the end date of the last testing cycle. The panel does not show how long it actually took the testing team to execute the tests.
Volatile Tests	This panel shows how often tests changed their status within an execution plan. Tests without status changes and test packages do not display in the panel. Tests display according to the selected project and time span. The panel makes test managers aware of such volatile

Panel	Description
	tests, which indicate either an unstable test or a tested area where bugs occur frequently.

Dashboard Panel Permissions

To view or edit the content of a certain dashboard panel, you need the following permissions:

Panel	Required permission
Assigned Issues	**View tests and executions**.
Custom Information	**Manage projects** required for editing.
	No permission required for viewing.
Introduction	No permission required.
Issue Life Cycle	**View project settings**.
Issues Created per Tester	**View tests and executions**.
Manual Tests Assigned to Me	**Execute tests**.
Planned vs. Actual Execution Time	**View testing cycles and configurations**.
Quality Goal Progress	**View quality goals**.
Report Subscription	No permission required.
Requirements Coverage Status	**View requirements**.
Status of Currently Running Manual Tests	**View tests and executions**
Testbook	No permission required.
Testing Cycle Progress	**View testing cycles and configurations**.
Testing Cycle Result Summary	**View testing cycles and configurations**.
Testing Cycle Timeline	**View testing cycles and configurations**.
Testing Progress Across Testing Cycles	**View testing cycles and configurations**.
Volatile Tests	**View tests and executions**.

Adding a Report to a Dashboard Panel

Using any report available in the **Reports** unit, the **Report Subscription** panel of your dashboard allows you to display an existing report. First, create and configure your report, and then add the panel to your dashboard.

1. In the menu, click **Reports** > **Details View**.
2. Select a report in the **Reports** tree.
3. Click the **Subscriptions** tab.
4. Click **Add Subscription**. The **Edit Subscription** dialog box opens.
5. Give your subscription a name in the **Name** field.
6. To modify the subscription parameters, click **Edit Parameters**. The **Edit Parameter** dialog box opens. Change the **Value** and click **OK**.
7. Select a schedule from the **Schedule** list. If the schedule you want does not exist, you need to create it.
8. Click **Provide for dashboard and external access** to make the report available in a dashboard panel.
9. Click **OK**. The new subscription is listed in the **Subscriptions** list.
10. In the menu, click **Home** > **My Dashboard**.

11. Click **Add Panel** on the top left. The **Add Panel** dialog box appears, listing the available panels along with a short description for each panel.
12. Select **Report Subscription**. The **Configure Panel** dialog box appears, listing all available report subscriptions.
13. Select a report subscription from the list and click **OK**. The panel is added to your **Dashboard**.

Requirements

This section explains how to manage requirements in Silk Central.

The **Requirements** area enables you to manage and control the system requirements during development. You can create, modify, and delete requirements, associate tests with requirements, track the changes in the history, and generate tests directly from requirement lists. As with all Silk Central functionality, the **Requirements** area is 100 percent Web enabled and accessible through a Web browser.

Managing Requirements

This section describes the tasks you can perform on requirements in Silk Central.

Creating Requirements

To create a new requirement:

1. In the menu, click **Requirements** > **Details View** .
2. In the **Requirements** tree, select a requirement. The newly created requirement will be placed on the same hierarchical level.
3. Click (**New Requirement**) in the toolbar. The **New Requirement** dialog box appears.
4. Type a **Name** and a **Description** for the requirement.

   Note: Silk Central supports HTML formatting and cutting and pasting of HTML content for description fields.
5. *Optional:* Uncheck the **Inherit from parent** check boxes. In this case the child requirement will not inherit the properties from the parent requirement. By default, all check boxes are checked.

   Note: In the **Details View** on the **Properties** page and in the **Document View**, inherited properties are marked with asterisks (*).
6. Select the appropriate **Priority**, **Risk**, and **Reviewed** status from the lists.
7. If custom requirements were defined, they are listed below the **Reviewed** list. Type in the corresponding field any custom property data that you want to track with this requirement.
8. To finish creating a new requirement:

   - Click **OK** to create the requirement and to close the dialog box.
   - Click **OK and New Requirement** to create the requirement and to keep the dialog box open to enter data for another requirement.
   - Click **OK and New Child Requirement** to create the requirement and to keep the dialog box open to enter data for a child requirement.

Creating Child Requirements

To create a child requirement:

1. In the menu, click **Requirements** > **Details View** .
2. In the **Requirements** tree, select the project node or a requirement. The newly created requirement will be placed hierarchically beneath that requirement.

3. Click (**New Child Requirement**) in the toolbar. The **New Child Requirement** dialog box appears.
4. Type a **Name** and a **Description** for the requirement.

   Note: Silk Central supports HTML formatting and cutting and pasting of HTML content for description fields.
5. *Optional:* Uncheck the **Inherit from parent** check boxes. In this case the child requirement will not inherit the properties from the parent requirement. By default, all check boxes are checked.

   Note: In the **Details View** on the **Properties** page and in the **Document View**, inherited properties are marked with asterisks (*).
6. Select the appropriate **Priority**, **Risk**, and **Reviewed** status from the lists.
7. If custom requirements were defined, they are listed below the **Reviewed** list. Type in the corresponding field any custom property data that you want to track with this requirement.
8. To finish creating a new child requirement:

   - Click **OK** to create the requirement and to close the dialog box.
   - Click **OK and New Requirement** to create the requirement and to keep the dialog box open to enter data for another requirement.
   - Click **OK and New Child Requirement** to create the requirement and to keep the dialog box open to enter data for a child requirement.

Editing Requirements

To edit the properties of a requirement:

1. In the menu, click **Requirements** > **Details View** .
2. In the **Requirements** tree, select a requirement.
3. Click (**Edit**) in the toolbar.

   You can also right-click a requirement and click **Edit** or click the **Properties** tab and click **Edit Properties**.

   The **Edit Requirement** dialog box appears.
4. Edit the values displayed on the **Edit Requirements** dialog box as required.
5. Click **OK** to save your changes.

Note: For details regarding creating, editing, and deleting custom requirement properties, see *Custom Requirement Properties*.

Marking Requirements as Obsolete

Deleting requirements destroys them permanently. Sometimes it is preferable to mark requirements as obsolete. Obsolete requirements can be hidden, shown, and recovered.

To mark a requirement as obsolete:

1. In the menu, click **Requirements** > **Details View** .
2. In the **Requirements** tree, select a requirement.
3. Click (**Delete**) in the toolbar or right-click the requirement and click **Delete**. A dialog box appears.
4. Click **Yes**.

   Note: The **Destroy permanently** check box is unchecked by default.

Note: Obsolete requirements are displayed in italics in the **Requirements** tree.

To show obsolete requirements, right-click a random requirement in the **Requirements** tree and click **Show Obsolete Requirements**.

To hide obsolete requirements, right-click a random requirement in the **Requirements** tree and click **Hide Obsolete Requirements**.

Recovering Obsolete Requirements

To recover an obsolete requirement:

1. In the menu, click **Requirements** > **Details View** .
2. If the obsolete requirements are hidden, right-click a random requirement in the **Requirements** tree and click **Show Obsolete Requirements**.
3. Right-click on the obsolete requirement in the **Requirements** tree and click **Recover**.

Note: Obsolete requirements are displayed in italics in the **Requirements** tree.

To hide the obsolete requirements again, right-click a random requirement in the **Requirements** tree and click **Hide Obsolete Requirements**.

Permanently Deleting Obsolete Requirements

To permanently delete an obsolete requirement:

1. In the menu, click **Requirements** > **Details View** .
2. If the obsolete requirements are hidden, right-click a random requirement in the **Requirements** tree and click **Show Obsolete Requirements**.
3. In the **Requirements** tree, select an obsolete requirement.
4. Click (**Delete**) in the toolbar or right-click the requirement and click **Delete**. A dialog box appears.
5. Click **Yes** to permanently delete the requirement.

Note: Obsolete requirements are displayed in italics in the **Requirements** tree.

To hide the obsolete requirements again, right-click a random requirement in the **Requirements** tree and click **Hide Obsolete Requirements**.

Requirements Toolbar Functions

Requirements > **Details View**

Requirements > **Document View**

The requirements toolbar provides important commands for managing your requirements.

Note: Some commands in the requirements toolbar are also available through context menus in the **Requirements** tree.

The following commands are included in the requirements toolbar:

Command	Icon	Description
Details View		Displays the **Details View**, which enables you to drill deeply into the properties of a single requirement.
Document View		Displays the **Document View**, which shows selected properties of all requirements in a single view.
New Requirement		Adds a new requirement to the active project.
New Child Requirement		Adds a new child requirement to the selected requirement.

Command	Icon	Description
Edit		Edits the selected requirement.
Delete		Marks the selected requirement as obsolete or destroys it permanently. Obsolete requirements can be hidden, shown, and recovered.
Cut		Cuts a requirement from the **Requirements** tree and saves it to the clipboard.
Copy		Copys a requirement from the **Requirements** tree to the clipboard.
Paste		Pastes a requirement from the clipboard to the **Requirements** tree.
Paste as Child		Pastes a requirement from the clipboard as a child requirement to the currently selected requirement.
Move Up		Moves a requirement up within the **Requirements** tree.
Move Down		Moves a requirement down within the **Requirements** tree.
Find		Searches through all requirements in the active project based on configurable parameters.
Replace		Replaces instances of found values with a new value.
New Filter		Creates a new filter for the **Requirements** tree.
Filters		Lists the available filters for the **Requirements** tree.
Edit Filter		Edits the selected filter.
Delete Filter		Deletes the selected filter.
Copy Filter		Copys the selected filter.
Show Changes		Shows recent changes to the requirements and their properties.
Acknowledge		Acknowledges changes to the requirements and their properties.
Show Direct Coverage **Show Full Coverage**	 	Toggles between direct and full coverage modes. This button is disabled in the **Details View**.
Download as PDF		Generates and downloads a PDF with all currently visible nodes of the **Requirements** tree. This button is disabled in the **Details View**.

Requirements Tree

Requirements are displayed, organized, and maintained through a hierarchical tree structure, the **Requirements** tree. Each node in the **Requirements** tree represents a requirement. Each requirement can have any number of child requirements associated with it. The **Requirements** tree enables you to organize requirements in any number of hierarchical levels.

Note: When the **Requirements** tree includes more elements than can be displayed at once without impacting response time, elements are displayed in increments. Page number links at the bottom of the tab allow you to browse through the elements included in the tree one page at a time. To display all elements as a single list, select the `[All]` link.

Collapsing or Expanding the Requirements Tree

To collapse or expand the **Requirements** tree:

1. In the menu, click **Requirements** > **Details View** .
2. Select the requirement folder in the **Requirements** tree and continue with one of the following options:
   - Click ▷ to the left of the name of the requirement folder to expand the folder.
   - Click ◢ to the left of the name of the requirement folder to collapse the folder.
   - Right-click on the folder and select **Expand** or **Collapse**. You can expand two, three, or all levels at once by using the command in the context menu

Filtering the Requirements Tree

If you filter a subtree, only the selected node and the child nodes are shown. All other nodes are temporarily hidden. This can be useful if you want to generate a PDF with a subset of all requirements.

To filter a subtree of the **Requirements** tree:

1. In the menu, click **Requirements** > **Details View** .
2. Right-click a requirement in the **Requirements** tree and click **Filter Subtree**.

   Note: This automatically creates a custom filter in the filter list, which is placed in the toolbar. You can save this filter by clicking (**Edit Filter**), clicking **Advanced**, and entering a name for the filter.
3. To disable the filter, select **<No Filter>** from the filter list in the toolbar.

Requirements Document View

Requirements > **Document View**

The **Document View** displays the status of all tests that are assigned to the active project, including the number and percentage of `Passed`, `Failed`, `Not Executed`, and `Not Covered` tests. The **Document View** displays this coverage status information in a “heat field” chart, with the following colors:

Color	Description
Green	Passed tests.
Red	Failed tests.
Orange	Tests that are not executed yet.
Gray	Test with other status.

Requirements that are not covered by tests are listed as `Not Covered`.

The **Document View** displays all custom requirement properties as columns.

Note: Test totals accumulate to the parent level, for all currently displayed tests. If you apply a filter to the **Requirements** tree, the test totals are based on the filtered requirements only. For example, the requirement totals include tests from all child requirements that are selected with the filter, and the project totals include tests from all requirements that are selected with the filter.

The **Document View** individually saves the display settings for each user and each project.

Requirement Properties

Besides the given default properties, you can also create your own requirement properties in Silk Central. These custom properties can be edited in the **Edit Requirement** dialog box just like the default properties.

To create custom properties for the active project, click **Requirements** > **Requirement Properties** in the menu and click **New Requirement Property**.

Custom properties are displayed in the **Requirements Details View** on the **Properties** page and in the **Requirements Document View**.

For additional information on custom requirement properties, see *Custom Requirement Properties*.

Replacing Requirement Properties

To replace the property value of one or more requirements:

1. In the menu, click **Requirements** > **Details View** .
2. Click (**Replace**) in the toolbar or right-click a requirement and click **Replace**. The **Replace** dialog box appears.
3. Select a requirement property from the **Find in** list.

   This list contains all default and custom properties.
4. In the **Find what** area, define your search criteria.

   The UI controls of the **Find what** area vary, based on the selected property. For example: If you select the property **Risk** two lists appear, if you select the property **Description** a text field and two check boxes appear.
5. In the **Replace with** area, enter the value that shall replace the identified data.
6. *Optional:* Check the **Case sensitive** check box to consider uppercase and lowercase letters.
7. *Optional:* Check the **Match whole word only** check box to include just complete standalone instances of the string.
8. Click **OK**. The first requirement that meets the search criteria is highlighted in the **Requirements** tree.
9. Click one of the following:

   - **Replace**: Replaces the property value of the highlighted requirement.
   - **Replace All**: Replaces the property value of all requirements that contain the defined value.
   - **Find Next**: Highlights the next requirement that contains the defined value.
   - **Find Previous**: Highlights the previous requirement that contains the defined value.
   - **New Replace**: Opens the **Replace** dialog box again, where you can set new values.
   - **Close**: Closes the dialog box.

   Note: If you click **Replace all**, all inherited properties will be overwritten. Child requirements also lose their inheritance setting in this case. Use **Replace** only on a parent requirement if you want the child requirements to inherit the new value.

Finding Requirement Properties

In the **Requirements** area, you can locate requirements that meet certain search criteria with the **Find** command. You can also replace identified property data with alternate data that you specify with the **Replace** command. Both commands offer **Find Next** and **Find Previous** functions that allow you to step through all identified properties.

To find a requirement:

1. In the menu, click **Requirements** > **Details View** .
2. Select on the toolbar to open the **Find** dialog box.

   Note: This command can also be executed by right-clicking a requirement and selecting **Find**.
3. Select a requirement property from the **Find in** list.

   This list contains all default and custom properties.

4. In the **Find what** area, define your search criteria.

   The UI controls of the **Find what** area vary, based on the selected property. For example: If you select the property **Risk** two lists appear, if you select the property **Description** a text field and two check boxes appear.
5. Click **OK** to begin your search. The first requirement that meets the search criteria will be highlighted in the tree view. The first requirement that meets the search criteria will be highlighted in the tree view.
6. Click **Find Next** on the **Find** dialog box to advance to the next requirement in the list that meets your search criteria. Click **Find Previous** on the **Find** dialog box to return to the previous requirement in the list that meets your search criteria.

   Note: When you reach the last or first requirement that meets the search criteria and respectively click **Find Next** or **Find Previous**, the search starts from the beginning.

Requirement Properties Page

Requirements > **Details View** > **Properties**

The **Requirement Properties** page displays high-level information about the selected requirement or project.

When requirements are synchronized with an external requirements management system, items are sometimes marked with an exclamation mark (!). This means that the marked field is not mapped to the external requirements management system. Use the property mapping feature to map property fields. If you don't use the property mapping feature, only the name and the description of the requirements are mapped. For more information, see *Editing Property Mapping*.

Item values that are marked with an asterisk (*) are values that are inherited from the parent requirement.

Click **Edit Requirement Properties** to edit the displayed properties.

The following table only applies to requirements that have a flag set.

Item	Description
Flagged By	Indicates who set the flag and when the flag was set.
Comment	Indicates the comments for the flag.
Clear Flag	Click to remove the flag.

The following table lists the properties of the selected requirement or project that are displayed on the **Properties** page.

Property	Description
Requirement Name	Name of the requirement.
Requirement ID	Identifier of the requirement.
Description	Description of the requirement.
Priority	Priority that has been configured for the requirement.
Risk	Risk that has been configured for the requirement.
Reviewed	Current review status of the requirement. `Yes` or `No`.
Custom Properties	If custom properties have been configured for the requirement, they are listed here.
Document	Source document (if any) from which this requirement was derived.
Created On	Date on which this requirement was created.

Property	Description
Created By	Name of the user who created this requirement.
Changed On	Date on which this requirement was last updated.
Changed By	Name of the user who last updated this requirement.

Requirement Attachments

You can upload multiple files or links as attachments to requirements or delete attachments. When you cut and paste requirements that have attachments, the attachments are automatically included with the copies.

The following attachment types are available:

- Uploaded Files (.gif, .png, .jpg, .doc, .rtf, .txt, .zip, .xls, .csv, and more)
- References to UNC paths
- References to URLs, including StarTeam URLs

Attaching a File to a Requirement

To attach a file to a requirement:

1. In the menu, click **Requirements** > **Details View** .
2. Select the requirement in the **Requirements** tree.
3. Click the **Attachments** tab.

   When requirements management integration has been enabled between a Silk Central project and a Caliber project, the **Attachments** page includes an **Open Caliber** button, which enables you to manage requirement attachments directly in Caliber.
4. Click **Upload File**. The **Upload File** dialog box appears.
5. Click **Browse** and select the file that you want to attach from your local file system.
6. Type a **Description** for the attachment.
7. Click **OK**. The attachment is uploaded to the server and associated with the selected requirement.

Note: Attaching files to a requirement may not work in Mozilla Firefox. Mozilla Firefox requires usage of three slashes, for example `file:///`, for a file link, while other browsers require only two, for example `file://`. Additionally, Mozilla Firefox includes a security feature blocking links from remote files to local files and directories. For more information, see *http://kb.mozillazine.org/Firefox_:_Issues_:_Links_to_Local_Pages_Don't_Work*

Attaching a Link to a Requirement

To attach a link to a requirement

1. In the menu, click **Requirements** > **Details View** .
2. Select the requirement in the **Requirements** tree.
3. Click the **Attachments** tab.

   When requirements management integration has been enabled between a Silk Central project and a Caliber project, the **Attachments** page includes an **Open Caliber** button, which enables you to manage requirement attachments directly in Caliber.
4. Click **Attach Link**. The **Attach Link** dialog box appears.
5. Type the URL in the **Link** field.
6. Type a **Description** for the attached link.
7. Click **OK**. The link is associated with the selected requirement.

Viewing a Requirement Attachment

To view a requirement attachment:

1. In the menu, click **Requirements** > **Details View** .
2. Select the requirement in the **Requirements** tree.
3. Click the **Attachments** tab.

   When requirements management integration has been enabled between a Silk Central project and a Caliber project, the **Attachments** page includes an **Open Caliber** button, which enables you to manage requirement attachments directly in Caliber.

A list of all attachments that are associated with the requirement opens. Each attachment name serves as a link. File-attachment links open **Save As** dialog boxes, enabling you to download attachments to your local file system. Link-attachments link directly to link destinations in newly spawned browser windows.

Deleting a Requirement Attachment

To delete a requirement attachment:

1. In the menu, click **Requirements** > **Details View** .
2. Select the requirement in the **Requirements** tree.
3. Click the **Attachments** tab.

   When requirements management integration has been enabled between a Silk Central project and a Caliber project, the **Attachments** page includes an **Open Caliber** button, which enables you to manage requirement attachments directly in Caliber.
4. Click ✕ in the **Actions** column of the attachment that you want to delete.
5. Click **Yes** on the confirmation dialog to delete the attachment from the project.

Note: Only one attachment at a time can be deleted.

Requirement Attachments Page

Requirements > **Details View** > **Attachments**

The **Attachments** page lists files and links that are attached to the selected requirement. The attachments are displayed in the order in which they are uploaded, though the list of attachments can be sorted by **Name**, **Created On**, and **Created By** properties.

Note: To display any attachments that are associated with child requirements of the selected requirement, check the **Include Child Attachments** check box.

Note: The file icons indicate whether documents are directly attached to the selected requirement, or whether they are attached to a child requirement of the selected requirement.

Single icon	The file is directly attached to the selected requirement.
Double icon	The file is attached to a child requirement of the selected requirement.

The **Attachments** page displays the following columns for each listed attachment:

Column	Description
Actions	Click ✕ to delete the attachment.
Attachment Icon	Depends on the type of the attachment.
Name	Name of the attachment.

Column	Description
Size	Size of the attachment.
Description	Description of the attachment.
Created On	When the attachment was created.
Created By	User who created the attachment.

Working with Tests

This section describes how to use tests in the **Requirements** area.

Assigning Tests from Grid View to Requirements

To assign one or more tests from the test area **Grid View** to one or more requirements:

1. In the menu, click **Tests** > **Details View** .
2. Click on the toolbar.
3. Select the tests that you want to assign to requirements.

   You can use your keyboard's `CTRL` and `SHIFT` keys to select multiple tests using standard browser multi-select functions.
4. Right-click the selected tests and select **Save Selection**.
5. In the menu, click **Requirements** > **Details View** .
6. Select the requirement to which you want to assign the selected tests.
7. Click the **Assigned Tests** tab.
8. Click **Assign Saved Selection**.

Note: Only tests that reside in the requirements test container are assigned. You can assign the selected tests to more than one requirement but you cannot assign them into requirements in a different project. The selection persists until you make a different selection or close Silk Central.

Assigning Tests to Requirements Manually

To manually assign tests to a requirement:

1. In the menu, click **Requirements** > **Details View** .
2. Select the requirement in the **Requirements** tree.
3. Click the **Assigned Tests** tab. All tests that are available for assignment are displayed in the **Test** window.
4. If you have created a test filter, you can select it from the filter list above the **Test** window.

   To create a new test filter, navigate to the **Tests** area and click **New Filter** on the toolbar.
5. Click left of any test you want to assign to the currently selected requirement.

   Clicking left of a test container or test folder assigns the tests that are located in those containers or folders to the selected requirement. Tests that are located within sub-folders of those containers and folders are also assigned.

Tip: Right-click a node to expand and collapse it.

Locating Assigned Tests in the Tests Tree

To locate an assigned test in the **Tests** tree:

1. In the menu, click **Requirements** > **Details View** .

2. Click in the toolbar.
3. Select a requirement in the **Requirements** tree that has at least one test assigned to it.
4. Click the **Assigned Tests** tab.
5. In the **Actions** column of a test, click to find out in which test folder or container the test is stored in. The corresponding test folder or container is highlighted in the **Tests** window.

Removing Test Assignments

To remove a test assignment:

1. In the menu, click **Requirements** > **Details View** .
2. Click in the toolbar.
3. Select a requirement in the **Requirements** tree that has at least one test assigned to it.
4. In the **Actions** column of the assigned test you want to remove, click .
5. Click **Yes** on the confirmation dialog box to confirm deletion of the assignment.

Note: To remove all test assignments from the selected requirement, click **Remove All**.

Generating Tests from Requirements Details View

You can generate tests directly out of the **Requirements** tree and assign tests to specific requirements. The **Requirements** tree serves as a template for the test folder/test structure of the new **Tests** tree.

To generate a new test from the **Details View**:

1. In the menu, click **Requirements** > **Details View** .
2. Right-click the requirement or project node that you want to convert into a test and select **Generate Tests**. The **Generate Tests from Requirements** dialog box appears. This dialog box enables you to specify whether the leaves, which means the lowest-level nodes, of the selected requirements sub-tree should be converted into tests or test folders and whether the tree should be generated into a new test container or an existing container.
3. Enter a name for the new test container in the **Enter Name** field and select a product from the **Select Product** list to create the container within the active Silk Central project.

   The **Select Product** list is populated with the products that are configured by a project manager. For detailed information, see the *Administration* topics in this Help or ask your project manager.
4. If you have defined a source control profile, select the source control profile you want to use for managing the test sources from the **Select Source Control Profile** list.

   For detailed information on source control profiles, see *Source Control Profiles* or ask your Silk Central administrator.
5. To include all child requirements of the selected requirement in the test, check the **Include Child Requirements** check box.

   The check box is checked by default.
6. To have the new tests automatically assigned to the requirements from which they are created, check the **Assign newly generated tests to Requirements** check box.

   If this option is not selected, tests must be manually associated with requirements.

   Note: This option is not available when checking **Generate test folders from requirement tree leaves**.
7. Click **OK** to create the test.

   The new test has the same structure as the **Requirements** tree.
8. A message box displays. Click **Yes** to view the test in the **Tests** area, or click **No** to remain in the **Requirements** area.

Assigned Tests Page

Requirements > **Details View** > **Assigned Tests**

The **Assigned Tests** page lists all tests that are assigned to the selected requirement. If a test is assigned to more than one execution plan and the **Display in Execution Context** check box is checked, the test is displayed in a separate line of the grid for each execution plan.

All tests that are available for assignment are displayed in the right-hand **Tests** tree. To assign a test to the selected requirement, double-click on the entry in the tree or click to the left of the entry.

If you have created a test filter, you can select it from the filter list above the **Tests** tree. To create a new test filter, navigate to the **Tests** area and click **New Filter** on the toolbar.

To automatically assign newly generated tests to the requirements from which they are generated, check the **Assign newly generated Tests to Requirements** check box on the **Generate Test from Requirements** dialog box.

The default view displays only those tests that are assigned directly to the selected requirement. Check the **Full Coverage** check box to additionally display all tests that are assigned to child requirements of the selected requirement. When **Full Coverage** is checked, tests that are not assigned to the selected requirement, but are assigned to a child of the requirement, are displayed with an overlay over the test-type icon.

If you have copied a set of tests from **Tests** > **Grid View** to the clipboard, click **Assign Saved Selection** to assign the entire set to the selected requirement. Click **Remove All** to remove all assigned tests from the requirement.

To assign existing issues to one or more tests directly in the grid, right-click a test and click **Assign Existing Issue**. You can select multiple tests with **Ctrl+Click** or **Shift+Click**.

The **Assigned Tests** page displays the following columns for each listed test:

Column	Description
Actions	You can perform the following actions on an assigned test: • Click to remove the assigned test from the requirement. • Click to locate the assigned test in the right-hand **Tests** tree.
Test	Name of the assigned test. Click to view and edit the test. For configuration testing, the test is separately listed for each configuration.
Execution Plan	This column is only displayed if the **Display in Execution Context** check box is checked. Name of the execution plan that includes the assigned test. For configuration testing.
Execution Plan Parent	The configuration suite, folder, or testing cycle in the context of which the execution plan is executed. Click to access the suite or folder in the **Execution Plans** tree. If the execution plan is not included in a configuration suite or folder, nothing is displayed.
Status	Status of the assigned test in each execution plan to which the test is assigned. To display the status of all runs of the displayed tests in each execution plan, check the **Display in Execution Context** check box. • Passed • Failed • Not Executed • N/A For tests or test packages that are included in a configuration suite, the status is an aggregation of all statuses of all configurations within the suite:

Column	Description
	• If the test is assigned only to the configuration suite, the status is `Passed` only if it is passed in all configurations. If the status is not `Passed` in all configurations, the status of the worst run is propagated, with the following top-down priority: **1.** N/A **2.** Not Executed **3.** Failed **4.** Passed The status of a requirement that is assigned to the test is `Failed` if the test fails in one or more of the configurations. • We do not recommend assigning the test to a configuration suite and one or more simple execution plans. However, in this case, the aggregate of the configuration statuses is one status, and the last statuses of the execution plans are other statuses. The status that was executed last determines the last status of the test. • If the test is assigned to a simple execution plan only, the status is updated in response to the status of the last test run.
Last Execution	Time and date of the last execution of the test.
Issues	This column is only displayed if the **Display in Execution Context** check box is not checked. Issues that are associated with this test.

Coverage

This section describes how to cover your requirements with tests.

Coverage Modes

Silk Central provides two modes for coverage. Full coverage and direct coverage. The status of a requirement in the full coverage mode considers the status of the child requirements and offers a cumulative view of the tests that cover the requirement. If one or more child requirements have the status `Not Covered`, then the full coverage status of the selected requirement is also `Not Covered`, even if the coverage status of the requirement is `Covered`. The full coverage mode enables easy evaluation of whether or not requirements are covered by tests.

The status of a requirement in the direct coverage mode is calculated based only on the status of the tests that are directly assigned to the requirement. Child requirements are not considered in calculations.

Switching Between Coverage Modes

To switch between full- and direct-coverage modes:

1. In the menu, click **Requirements** > **Details View** .
2. Click / to respectively view direct coverage or full coverage.

Coverage Page

Requirements > **Details View** > **Coverage**

The **Coverage** page, which you can only access in **Details View**, displays basic properties of the selected requirement or project. It also displays the status of all tests that are assigned to the requirement, including the number and percentage of `Passed`, `Failed`, `Not Executed`, and `Not Covered` tests. A summary of all assigned tests is listed under **Total**. Requirements that are not covered by tests are listed as `Not Covered`.

The **Details View** page displays the same coverage status information in a “heat field” chart.

To view the status of all tests that are assigned to child requirements of the selected requirement in addition to all tests that are directly assigned to the requirement, check the **Full coverage** check box.

Note: In both **Details View** and the **Coverage** page, test totals accumulate to the parent level. For example, requirement totals include tests from child requirements and project totals include tests from all requirements.

The **Coverage** page displays the following properties for each selected requirement or project:

Property	Description
Requirement Name	Name of the selected requirement or project.
Project Name	
Priority	Priority that has been assigned to the selected requirement.
Risk	Risk that has been assigned to the selected requirement.
# Requirements (Calc.)	Total number of all covered requirements. Not included in this number are uncovered requirements and folders that do not have a test assigned to them. For example folders that inherit the coverage of their child requirements but are not actually a requirement themselves.
# Requirements (Total)	Total number of all requirements beneath the selected entity, including folders.
Requirement Status	Status of the selected requirement or project.
Project Status	• `Passed` • `Failed` • `Not Executed` • `Not Covered`
# Requirements Passed	Total and percentage of requirements in the project that have tests that have passed.
# Requirements Failed	Total and percentage of requirements in the project that have tests that have failed.
# Requirements Not Executed	Total and percentage of requirements in the project that have tests that have not been executed.
# Requirements Not Covered	Total and percentage of requirements in the project that are not covered by tests.
Total	Total number of requirements in the project.

Requirement History

Silk Central provides a complete history of all changes that are made to requirements. History information is read-only, and cannot be edited or permanently deleted.

The **Recent Changes** filter, which you can access by clicking on the toolbar, enables you to efficiently view and acknowledge the latest changes and additions that have been made to requirements.

Note: When you delete a requirement with the **Destroy permanently** option, you delete a requirement that is marked as obsolete, or if you acknowledge all recent changes, a change history entry is added to the history file of the project, to which the requirements belong.

Viewing Recent Changes

To view recent changes to requirements:

1. In the menu, click **Requirements** > **Details View** .
2. Click to filter out all requirements except those that have been changed since your last change acknowledgement.

   Note: The recent changes filter is selected automatically in the **Filter** list box.
3. When you have reviewed the changes, you can accept them by clicking .

   The acknowledge function resets the recent changes filter.
4. Click again to remove filtering and see all requirements.

Tracking the History of a Requirement

To view a requirement's history:

1. In the menu, click **Requirements** > **Details View** .
2. Select the requirement in the **Requirements** tree.
3. Click the **History** tab.
4. *Optional:* When requirements management integration between a Silk Central project and a Caliber project is enabled, you can click **Open Caliber** in the **History** page to view the history of synchronized requirements directly in Caliber.

The properties of all revisions that have been logged by Silk Central are displayed in tabular format.

Requirement History Page

Requirements > **Details View** > **<Requirement>** > **History**

The **History** page details the revision history of the selected requirement or project. The following actions generate requirement history entries:

- Adding a new requirement
- Editing a requirement
- Marking a requirement as obsolete
- Adding an attachment to a requirement
- Deleting an attachment from a requirement
- Importing or updating a requirement through MS Word or MS Excel

For each change, the page displays the following columns:

Column	Description
Rev.	Revision number. 1-n.
Changed On	Date and time of the change.
Changed By	User that made the change.
Notes	Automatically generated description of the change. For example, "deleted" or "created".

Note: When the page includes more elements than can be displayed at once without impacting response time, elements are displayed in increments. Page number links at the bottom of the page

allow you to browse through the elements included on the page one page at a time. To display all elements as a single list, click the **[All]** link.

Requirement Change Notification

You can configure email notifications to alert you to changes that are made to requirement settings for specified projects. For more information on change notification, see *Change Notification*.

Requirements Reports

This section describes the requirements-related reports that ship with Silk Central. Requirements reports detail the status of functional requirements, for example compatibility requirements, GUI requirements, or feature requirements, which must be met during development. Requirements may also relate to product management objectives such as reliability, scalability, and performance. The requirement-management reports help managers to determine if adequate test coverage is established to verify that system requirements are met during development. When a report references a requirement that includes HTML-formatted content, that content is rendered in the report.

Status Reports

The following status reports are available for the **Requirements** area:

Report	Description
Requirements Status Overview	Represents a grouped summary of all requirements by current requirement coverage. Coverage is expressed by the statuses `Passed`, `Failed`, `Not Executed`, and `Not Covered`.
Top-Level Requirement Coverage	Represents a listing of all top-level requirements. For each requirement the number of child requirements, that are covered and not-covered by tests, is displayed.
Status of Requirements with Priority Higher than 'X'	Represents a summary of all requirements by current requirement coverage. The returned group of requirements is restricted by the `Priority` parameter, which specifies the lowest requirement priority that is considered in the data.
Requirement Impact Analysis Report	Displays the test details grouped by the execution plan that is associated to the requirement. This report allows the user to gain insight into testing assets that may be impacted by a change to the requirement. The report contains the name, status, date/time of last execution, manual testers, planned time, and issues of each test. The following statuses are used: **Status** — **Description** **Passed** — The test passed. **Failed** — The test failed. **N/A** — The test is associated to a requirement but is not submitted for execution. **Not Executed** — The test is associated to a requirement and is submitted for execution but not executed yet.
Project Requirement Traceability Report	Displays all requirements in a project along with their associated tests and issues. The following statuses are used: **Status** — **Description** **Passed** — The test passed.

Report	Description

Status	Description
Failed	The test failed.
N/A	The test is associated to a requirement but is not submitted for execution.
Not Executed	The test is associated to a requirement and is submitted for execution but not executed yet.

Progress Reports

The following progress reports are available for the **Requirements** area:

Report	Description
Requirements Coverage Across Builds 'X' and 'Y'	Represents a summary of all requirements by current requirement coverage. The returned group of requirements is restricted by the `Priority` parameter, which specifies the lowest requirement priority that is considered in the data.
Requirements Coverage Over the Past 'X' Days	Represents a trend in requirements coverage by considering overall requirements coverage over 'X' days.
Specific Requirements Coverage Over the Past 'X' Days	Represents a trend in requirements coverage by considering specific requirements coverage over 'X' days.

Document Reports

The following document reports are available for requirements:

Report	Description
All Requirements	All requirements are represented with full requirement information.
Requirement with Child Requirements	The selected requirement is shown with its requirement ID. Full details regarding the child requirements of the requirement are displayed.

All Related Issues Report

The *All Related Issues* report provides a detailed list of all issues related to the assigned tests for a requirement, and explains the relationship between requirements, the assigned tests, and issues that have occurred.

Input Parameters

The input parameter for the *All Related Issues* report is the identifier of the requirement.

General Report Information

This section provides the following general information about the report:

Element	Description
Project Name	Name of the active project.
Report Description	Description of the report.
Report Executed By	User who executed the report.

Requirement Information

This section provides the following information about the requirement:

Element	Description
ID	Identifier of the requirement.
Name	Name of the requirement.
Description	Description of the requirement.
Nr. of Issues	Amount of issues related to the requirement or sub-requirements of the requirement.

Related Issues

Shows all issues related to the requirement or sub-requirements of the requirement in tabular form. The table provides the following information for each issue:

Column	Description
ID	Identifier of the issue. If an identifier is provided by the issue tracking system, this external identifier is used. The identifier is clickable if an external link is defined for the issue.
Synopsis	Meaningful short-description of the issue.
Status	Current status of the issue. If the status is provided by the issue tracking system, this external status is used.
Assigned by	Person who assigned the issue to the test.
Test ID	Identifier of the test in which the issue was discovered.
Test	Name of the test in which the issue was discovered.

Flags

Flags indicate that a requirement has changed or needs to be reviewed. Requirements with flags appear in the requirements tree with flag icons. There is also a section in the requirement properties to view flag information.

You can add and remove flags as needed and others will see the flag when they look at the requirement. You can also flag a requirement and all of its children. There can only be one flag on an item at a time and setting a flag on an item that already has a flag will overwrite the flag. Changes to the requirement flag are maintained in the requirements change history.

If you are integrating with an external requirements management tool, you will also see flags from new or updated external requirements. The following are scenarios about how flags are applied for integrated requirements:

- If you add a requirement to the requirements management tool after initial synchronization, then a subsequent synchronization is performed, when the new requirement is added to Silk Central, it will display with an *added* flag to indicate it was created during an update.
- If you edit a requirement that has been synchronized to Silk Central, the requirement in Silk Central will be flagged with a *updated* flag to indicate it was updated.

Setting a Flag

To set a flag on a requirement:

1. In the menu, click **Requirements** > **Details View** .
2. Select the requirement in the **Requirements** tree.
3. Right click the requirement and choose **Flag** > **Set Flag** . The **Set Flag** dialog box opens.

4. Type a comment for the flag in the **Comment** text box.
5. To set the flag for all children of the currently selected requirement, click the **Set flag on child requirements** check box.
6. Click **Ok**.

Note: The flag information is available on the **Properties** page of the requirement.

Clearing a Flag

To clear a flag from a requirement:

1. In the menu, click **Requirements** > **Details View** .
2. Select the requirement in the **Requirements** tree.
3. To clear a single flag: Right click the requirement and choose **Flag** > **Clear Flag** .
4. To clear the flag for all children of the selected requirement: Right click the requirement and choose **Flag** > **Clear Flag - Include Children** . The flag information is removed from the **Properties** page of the requirement.

Note: You can also clear the flag by clicking **Clear Flag** on the **Properties** page of the requirement.

Creating a Filter for Flagged Requirements

To create a filter for flagged requirements:

1. In the menu, click **Requirements** > **Details View** .
2. Click **New Filter**. The **New Filter** dialog box opens.
3. Select **Requirements Property** from the **Selection Criteria** list.
4. Select **Requirement State** from the **Property** list.
5. Select = from the **Operator** list.
6. Select one of the following values from the **Value** list:

None	No flag is selected
Flagged Manual	User manual added a flag to a requirement.
Flagged New	Requirement was created.
Flagged Updated	Requirement was updated.
Obsolete	Requirement is marked as obsolete.

7. Click **Save** and **Apply**.

Note: If child requirements are flagged, but one or more parent requirements are not flagged, the full path to the flagged child requirements will display, but with the parent requirements disabled. You cannot set or clear the flag for parent requirements that are in this state.

Requirements Import

Silk Central enables you to import requirements from Microsoft Word and Excel. You can import a requirement into the **Requirements** area and then maintain all included requirements in Silk Central. The import is a one-time event.

Importing Requirements from a Word File

Before you can import requirements, you need to create a requirements file in Word. For more information, see *Word Requirements File*.

Silk Central uses the information stored in the Word file and in a mapping file to determine what data to store and captures only the information that is mapped with certain styles. Silk Central uses a mapping file to map the requirements in the Word file to the Silk Central requirements. A default mapping file named `RequirementsPropertiesDefaultMapping.xml` is preselected for the import. You can choose your own customized mapping file to map your requirements.

DOCX functionality: The functionality for `.docx` is the same as for `.doc` with the following improvements:

- Images and any other embedded object (OLE) (for example: PDF, Excel) are detected and imported as an attachment to a requirement.
- Descriptions may contain hyperlinks.

To import requirements from a Word file into the **Requirements** unit:

1. In the menu, click **Requirements** > **Details View** .
2. Right-click the requirement that you want to use as the parent node of the imported requirements and choose **Import from Word...**. The **Import Requirements from Word File** dialog box opens.
3. Select the mapping file from the **Choose Mapping File** list box. The default mapping file is `RequirementsPropertiesDefaultMapping.xml`.
4. *Optional:* Edit the requirements mapping file.
5. Either type the fully qualified path of the requirements file into the **Requirements File** field or click **Browse** to search for the requirements file.
6. Click **OK**. A message informs you if the import was successful. Click **OK** to close the message.

Updating Requirements from a Word File

Silk Central enables you to update requirements that were imported from Microsoft Word. You can change the requirements in the Word document and then update them in the **Requirements** area. You can also change the mapping file to change the mapping of the requirements in the **Requirements** area.

Note: You can only update a requirement for which a unique external ID is defined in the Word file that has previously been imported. Silk Central requires this ID to identify which requirement needs to be updated.

1. In the menu, click **Requirements** > **Details View** .
2. Right-click the parent node of the previously imported requirements (for example `Imported from file 'RequirementExample.docx'`) and choose **Update from Word...**. The **Update Requirements from Word File** dialog box opens.
3. Select the mapping file from the **Choose Mapping File** list box. The default mapping file is `RequirementsPropertiesDefaultMapping.xml`.
4. Either type the fully qualified path of the requirements file into the **Requirements File** field or click **Browse** to search for the requirements file.
5. Click **OK**. A message informs you if the update was successful. Click **OK** to close the message.

Word Requirements File

Create a requirements file in Word to import requirements into Silk Central or to update them. In the requirements file, define requirements and their hierarchy, along with their priorities, risks, review status, and custom properties.

To map the requirements in your requirements file to the requirements in Silk Central, use an XML mapping file. The mapping file maps the styles in the Word document to the requirement properties in Silk Central. You can name the Word styles as you want, as long as you map them appropriately in your mapping file.

If you want to be able to update the requirements, you must define a style for the external ID and assign a unique external ID to each of the requirements in the requirement file. The following example shows a sample requirement, two subrequirements, and the corresponding external IDs:

Word file	Applied styles
Customer Account Management - Basics ID_1 As user of the web shop I want to be able to ... Medium High No Customer Account Management - Personal Details ID_1.1 As user of the web shop I want to be able to ... Medium Medium No Customer Account Management - Shipping Details ID_1.2 As user of the web shop I want to be able to ... Medium Medium No	Formatted with Word style "Heading 1" Formatted with Word style "ExternalID" Formatted with Word style "Description" Formatted with Word style "Priority" Formatted with Word style "Risk" Formatted with Word style "Reviewed" Formatted with Word style "Heading 2" Formatted with Word style "ExternalID" Formatted with Word style "Description" Formatted with Word style "Priority" Formatted with Word style "Risk" Formatted with Word style "Reviewed" Formatted with Word style "Heading 2" Formatted with Word style "ExternalID" Formatted with Word style "Description" Formatted with Word style "Priority" Formatted with Word style "Risk" Formatted with Word style "Reviewed"

Importing Requirements from an Excel File

Before you can import requirements, you need to create a requirements file in Excel. For more information, see *Excel Requirements and Mapping File*.

Silk Central uses the information stored in the Excel file and in a mapping file to determine what data to store and captures only the information that is mapped with certain column names. Silk Central uses a mapping file to map the requirements in the Excel file to the Silk Central requirements. A default mapping file named `RequirementPropertiesXlsxDefaultMapping.xml` is preselected for the import. You can choose your own customized mapping file to map your requirements.

Note: Importing attachments (images, graphs) is not supported.

To import requirements from an Excel file into the **Requirements** unit:

1. In the menu, click **Requirements** > **Details View** .
2. Right-click the requirement that you want to use as the parent node of the imported requirements and choose **Import from Excel...**. The **Import Requirements from Excel File** dialog box opens.
3. Select the mapping file from the **Choose Mapping File** list box. The default mapping file is `RequirementPropertiesXlsxDefaultMapping.xml`.
4. *Optional:* Edit the requirements mapping file. For more information, see *Excel Requirements and Mapping File*.
5. Either type the fully qualified path of the requirements file into the **Requirements File** field or click **Browse** to search for the requirements file.
6. Click **OK**. A message informs you if the import was successful. Click **OK** to close the message.

Updating Requirements from an Excel File

Silk Central enables you to update requirements that were imported from Microsoft Excel. You can change the requirements in the Excel document and then update them in the **Requirements** area. You can also change the mapping file to change the mapping of the requirements in the **Requirements** area.

Note: You can only update a requirement for which a unique external ID is defined in the Excel file that has previously been imported. Silk Central requires this ID to identify which requirement needs to be updated.

1. In the menu, click **Requirements** > **Details View** .
2. Right-click the parent node of the previously imported requirements (for example `Imported from file 'RequirementExample.xslx'`) and choose **Update from Excel...**. The **Update Requirements from Excel File** dialog box opens.
3. Select the mapping file from the **Choose Mapping File** list box. The default mapping file is `RequirementPropertiesXlsxDefaultMapping.xml`.
4. Either type the fully qualified path of the requirements file into the **Requirements File** field or click **Browse** to search for the requirements file.
5. Click **OK**. A message informs you if the update was successful. Click **OK** to close the message.

Excel Requirements and Mapping File

Create a requirements file in Excel to import requirements into Silk Central or to update them. In the requirements file, define requirements and their hierarchy, along with their priorities, risks, review status, and custom properties.

To map the requirements in your requirements file to the requirements in Silk Central, use an XML mapping file. The mapping file maps the columns in the Excel document to the requirement properties in Silk Central.

Property Mappings

Click **Edit Mapping** on the **Import Requirements from Excel File** or **Update Requirements from Excel File** dialog to map the requirements in your Excel file to Silk Central as follows:

- **Header Row**: Specify the row in your Excel requirements file which contains the column names to be used for mapping the properties.
- **First Data Row**: Specify the row that contains the first requirement. This row and all rows below are interpreted as requirements.
- **Separator Characters**: Specify the characters that should be interpreted as separators within property values. This is used for multi-list properties.
- **Name**, **Description**: Specify the column names in the header row that are mapped to requirement name and description, respectively.
- **External GUID**: Specify the column name in the header row that contains the unique ID within your requirements file for each requirement. These IDs can be used in **External Parent GUID** to create a hierarchy of your requirements.
- **External Parent GUID**: Specify the column name in the header row that contains the parent of a requirement. In your requirements file, enter the parent's **External GUID** to specify the parent of a requirement. If this cell does not contain data, the requirement is added directly to the generated root requirement. The following rules apply:
  - If a requirement has no parent ID set, it is added as a child to the generated root requirement
  - If a requirement has an invalid parent ID, it is added as a child to the generated root requirement
  - If a requirement has its own external ID set as parent ID, it is added as child to the generated root requirement
  - If two or more requirements have a circular dependency through their parent IDs, they are not imported into Silk Central
- **Priority**, **Risk**, **Reviewed**: Specify the column names in the header row that are mapped to the localized values for these properties.
- If you have defined custom properties, specify the column names in the header row for each of them to be mapped correctly.

- **Save as**: Specify the name of the file to be saved with your mapping information. This file is saved on the application server in `<Silk Central data directory>\OfficeImportMappingFiles\requirements\xlsx\<client ID>`, for example `C:\ProgramData\SilkCentral\OfficeImportMappingFiles\requirements\xlsx\1`.

Sample Excel Requirements File

The following example shows a sample requirement, two subrequirements, and the corresponding external IDs. This sample Excel requirements file matches the default property mappings.

1	Requirement Name	Requirement Description	ID	Parent ID	Priority	Risk	Reviewed
2	Customer Account Management	As user of the web shop I want	ID_1		Medium	High	No

	nt-Basics	to be able to...					
3	Customer Account Management-Personal Details	As user of the website I want to be able to...	ID_1.1	ID_1	Medium	Medium	No

4	CustomerAccountManagement-ShippingDetails	Asuserofthewebshoplwanttobeableto...	ID_1.2	ID_1	Medium	Medium	No

External Requirements Management Tools

This section explains how to work with external requirements management tools.

Important: Before upgrading from Silk Central 15.0 or earlier to the current version, perform a **Synchronize All** to synchronize all your requirements with your integrated requirements management tools.

Synchronizing Requirements

Enabling synchronization of requirements between Silk Central and an external RMS enables Silk Central to receive changes that occur in the external RMS whenever a synchronization is executed. If a project has

external RMS integration enabled, the master system for requirements is automatically the external system. This means that synchronization is always from the external RMS tool to Silk Central. Requirements can no longer be edited in Silk Central. An exception are newly created requirements that don't exist in the external tool, which are uploaded to the external (master) system only if the option **Enable upload of requirements** is enabled in **Settings** > **Requirements Management** .

Property mapping functionality allows you to map property fields between Silk Central and external requirement tools. For example, a custom field in Silk Central called `User` might be equivalent to a property field in Caliber called `Field_2`. The property mapping feature ensures that changes to requirement-property fields are accurately refreshed between projects. If you don't use the property mapping feature, only the name and the description of the requirements are mapped. For more information, see *Editing Property Mapping*.

Requirements can be synchronized in one of several ways:

Manual synchronization	Click **Synchronize Changes** at the root folder level on the **Properties** page to synchronize only requirements that have changed since the last synchronization. This option is not available for IBM Rational RequisitePro.
Forced manual synchronization	Click **Synchronize All** at the root folder level on the **Properties** page to force synchronization of all requirements.
Automatic scheduled synchronization	Based on globally defined Silk Central schedules.
Automatic online synchronization	Changes to requirements are automatically propagated between tools. This option is available for Caliber only. It requires Caliber client installation on the application server and MPX enabled on the Caliber Server (refer to the Caliber Installation Guide for detailed information on enabling MPX). To enable automatic synchronization between Caliber and Silk Central, add the file `ss.jar` to the application server at `Program Files\Silk\Silk Central <version>\lib` and restart the application server. Contact customer care to obtain the file. Requirement data is automatically updated in Silk Central when changes are made in Caliber and traces in Caliber are updated when test assignment changes are performed in Silk Central. This type of online synchronization is only available when projects are configured with the current baseline.

Automatic synchronization of requirements between Silk Central and external requirements management tools can be configured to occur based on global schedules. For details on configuring global schedules, see the *Administration* topics in this Help.

Note: The **Open Caliber** buttons open whatever program is registered as the default program for opening files of extension `.crm`. On some machines, this may be the requirement viewer, rather than Caliber. This behavior can be changed by your administrator. The client program is called `caliberrm.exe`. When properly configured, the program opens to the requirement that is selected in Silk Central.

The binder icon on the project node of the **Requirements** tree indicates the status of RM integration for the project:

No configuration	RM integration is not available.
Manual configuration	Requirement import, upload, and synchronization can be done only by clicking the corresponding buttons on the project node in **Requirements** > > **Properties**.

At the project level, the **Properties** page includes the following properties:

Property	Description
System	The external tool with which integration has been enabled.
Status	Whether or not integration has been enabled.
Project Name	The name of the external project that the Silk Central project is associated with.
Requirement Types	The requirement types that are shared between projects.
Last Synchronization	Date and time of the last synchronization.
Last Synchronization Status	The status of the last synchronization including the number of created, updated, and deleted items.

Note: When integration between Caliber and Silk Central with automatic online synchronization has been enabled, the project node displays the current status of the online requirements change listener. The three possible statuses for such projects are: `Connected` (synchronized), `Reconnected` (synchronization recommended), and `Disconnected`.

Synchronizing Requirements Across Tools

Note: Use the property mapping feature to map property fields. If you don't use the property mapping feature, only the name and the description of the requirements are mapped. For more information, see *Editing Property Mapping*.

To synchronize requirements between Silk Central and an externally configured requirements management tool

1. In the menu, click **Requirements** > **Details View** .
2. Select the Project node in the **Requirements** tree.
3. Click the **Properties** tab. The **Properties** page displays the properties of the selected tree-element.
4. Click **Synchronize Changes**.
5. Click **Yes** on the **Synchronize Requirements** confirmation dialog box to begin synchronization. A dialog box opens when synchronization is complete, displaying synchronization statistics, including the number of requirements that have been created, updated, and deleted.
6. Click **OK** to complete the synchronization. Any updates that were made to mapped requirements in your externally configured requirements management tool are now reflected in the **Requirements** tree.

Synchronizing Requirements based on Schedules

You can configure global schedules to automatically synchronize requirements between Silk Central and an external requirements management tool. To enable automatic synchronization between Caliber and Silk Central, add the file `ss.jar` to the application server at `Program Files\Silk\Silk Central <version>\lib` and restart the application server. To obtain the file, contact customer care.

To synchronize requirements based on globally defined schedules:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Requirements Management** tab.
3. Click **Edit Schedule**. The **Edit Schedule** dialog box opens.
4. Click the **Global** option button.
5. Select a pre-defined global schedule from the selection list.
6. Click **OK**.

Defining Email Notification for Automatic Synchronization Events

You can define an email notification to alert users when errors occur during automated synchronization of requirements between Silk Central and external requirements management tools. All notification recipients receive copies of the synchronization log files.

To define an email notification for automatic synchronization events:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Requirements Management** tab.
3. Click **Edit Notification**. The **Edit Notification** dialog box displays.
4. Check the **Enable notification** check box.
5. Select a user name from the **Username** list box.
6. If required, add additional email addresses for other recipients in the **Other email addresses** text box. Use semicolons to separate multiple email addresses.
7. Click **OK**.

Caliber Integration

This section describes how to integrate Caliber with Silk Central.

Note: Caliber user defined attribute **Multiple selection user list** and **Multiple selection group list** must be mapped to the Silk Central text attribute type and not list type.

Enabling Integration with Caliber

To enable integration with Caliber:

1. In the menu, click **Projects** > **Project List**.
2. Select the project to which you want to establish integration.
3. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
4. Click the **Requirements Management** tab.
5. Click **New Integration**.

   Note: To enable creation and editing of unmapped requirements within the integrated requirements, check the **Allow internal requirements** check box.

   The **New Integration** dialog box opens.
6. Select **Caliber** from the list and click **Next**. The **Edit Configuration** dialog box opens.
7. Type a **Name** for the new profile.

   This is the name that is displayed in lists where the profiles are available for selection.
8. Type the **Hostname** of the machine where the external server is installed.
9. Type valid **Username** and **Password** credentials for the requirements management server.
10. Click **Test Connection** to confirm that the host and user credentials you have entered are correct.

    A **Connection successful** message box displays if the settings are correct. Click **OK** to continue.

    Note: Consult your system administrator if you are not able to establish a connection.
11. Click **OK**.
12. From the **Project** list box, select the external project with which the Silk Central project is to be integrated. The requirement types that are available with the selected project are automatically

populated into the **Requirement Types** field. The baselines that are available with the selected project are automatically populated into the **Baseline** field.

13. Select a **Baseline** from the external project that should be integrated with the Silk Central project.

    Your selections are displayed on the **Edit Configuration** dialog box.

14. Click **OK**.
15. Select one or more requirement types from the external project that should be integrated with the Silk Central project.

    Use `CTRL + Click` to select multiple requirement types.

16. Click **OK** to save your settings.

Baseline Support for Caliber Integration

You can select the current baseline or existing user-defined baselines for Caliber integration. You cannot import modified baselined requirements into Silk Central. Requirements that are not of the current baseline can only be changed in Caliber if the version of the requirement that is used for the baseline is changed. Such changes are only updated within Silk Central requirements when a manual or scheduled synchronization is performed.

You can change a baseline after you import it into Silk Central. You can change the configured baseline to a different user-defined baseline or the current baseline. After such a change, the next synchronization of the baseline, either manual or scheduled, will update the Silk Central project and update, create, or delete requirements as required. When a baseline is changed, a message displays that states that the changes will take effect after the next synchronization.

Handling Test Assignments in Caliber

Assigned tests are displayed, managed, and created as traces (“Trace to”) of synchronized requirements in Caliber.

The External Traceability for Silk Central must be enabled for a Caliber project within the Caliber Administrator and the correct Silk Central front-end server must be configured. Click **Edit** for the Silk Central External Traceability for correct project within the Caliber Administrator.

When a project is synchronized with a Silk Central project, the assigned tests of the synchronized Silk Central requirements will display as traces ("Trace To") of the Caliber requirement. If you edit these assignments in Silk Central, the changes will be reflected immediately in Caliber.

Copying Caliber-Integrated Projects

To manage Caliber baselines when copying Silk Central projects:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.

2. Click the **Requirements Management** tab.
3. Verify that the baseline you want to save is selected.

   Note: If a baseline is changed, you must perform a synchronization to update the project requirements with the baseline changes, before you can copy an associated Silk Central project. The integration configuration is only copied if you select a baseline other than the current baseline. If you select the current baseline, you need to specify if you want to keep the integration configuration in the original project or move it to the copied project.

4. If the baseline that you want to save is not selected, click **Edit Configuration**. The **Edit Configuration** dialog box displays.
5. Click **Browse** next to the **Project name** text box. The **Browse Projects** dialog box opens.
6. Select the baseline you want to save, then confirm your selection.

7. In the menu, click **Projects** > **Project List** . The **Projects** page displays, listing all existing projects and project baselines.
8. Click in the **Actions** column of the project you want to copy.

   Note: For full details on copying a project, see the *Administration* topics in this Help.

   The **Copy Project** dialog box displays.
9. Select the items you want to copy into the new project, then confirm your selection.
10. Apply the baseline that you want to continue working with to the Silk Central project.

    Note: After copying a project, the original project and the copy are identical. Define on which you will continue working on by applying the corresponding baseline.

Creating a Baseline for a Caliber-Integrated Project

To create a baseline of a Caliber-integrated Silk Central project:

1. Create a baseline of the Silk Central project. A Silk Central message box displays during the process, asking if you want to enable the Caliber integration for the new baseline.
2. Click **Yes**. When the new baseline is created, the **Baseline Project - Adapt Project Settings** dialog box opens.
3. Click **Edit** to change the requirements integration settings.

   The **Edit Configuration** dialog box opens.
4. Click **Browse** next to the **Project name** text box. The **Browse Projects** dialog box opens.
5. Select a Caliber project, a baseline, and the requirement type for synchronization.
6. Click **Ok** to close the **Browse Projects** dialog box.
7. Click **Ok** to close the **Edit Configuration** dialog box.
8. Click **Finish** to close the **Baseline Project - Adapt Project Settings** dialog box.

Atlassian JIRA Agile Integration

Silk Central offers a requirements integration with Atlassian JIRA Agile, which is based on the project and issue tracking system JIRA. All issue types (the generic object type in JIRA) can be synchronized. Since Atlassian JIRA Agile offers the creation of custom issue types, you can specify a list of Atlassian JIRA Agile issue types in Silk Central that you want to synchronize, such as for example `Bug` or `Improvement`.

Enabling Integration with Atlassian JIRA Agile

To enable integration with Atlassian JIRA Agile:

1. In the menu, click **Projects** > **Project List**.
2. Select the project to which you want to establish integration.
3. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
4. Click the **Requirements Management** tab.
5. Click **New Integration**.

   Note: To enable creation and editing of unmapped requirements within the integrated requirements, check the **Allow internal requirements** check box.

   The **New Integration** dialog box opens.
6. Select **Atlassian JIRA Agile** from the list and click **Next**. The **Edit Configuration** dialog box opens.
7. Type a **Name** for the new profile.

This is the name that is displayed in lists where the profiles are available for selection.

8. Enter the **URL** of your JIRA Agile server.
9. Type valid **Username** and **Password** credentials for JIRA Agile.
10. In the **Issue Types** field, specify the issue types that you want to synchronize, separated by semicolons (;).

    All issue types (the generic object type in JIRA) can be synchronized. Since Atlassian JIRA Agile offers the creation of custom issue types, you can specify a list of Atlassian JIRA Agile issue types in Silk Central that you want to synchronize, such as for example `Bug` or `Improvement`.
11. Click **Test Connection** to confirm that the host and user credentials you have entered are correct.

    A **Connection successful** message box displays if the settings are correct. Click **OK** to continue.

    Note: Consult your system administrator if you are not able to establish a connection.
12. Click **Load**. The **Project** list is populated with all the projects in JIRA Agile that you have permissions for.
13. From the **Project** list, select the external project with which the Silk Central project is to be integrated.
14. Click **OK** to save your settings.

Atlassian JIRA Agile Property Mappings

The following properties have a default mapping between JIRA Agile and Silk Central:

- User stories that are in JIRA Agile's `Backlog` are reflected in Silk Central by having the `Sprint` property value set to `Backlog`. This enables you to easily search for them by creating a filter.
- The default `Priority` values of JIRA Agile's user stories are mapped to Silk Central's `Priority` property. If you are not using JIRA Agile's default `Priority` values, you can customize this mapping.

Viewing JIRA Agile Backlog Stories in Silk Central

1. In the menu, click **Requirements** > **Details View**.
2. Create a new filter with the following criteria:
   - **Selection Criteria**: `External Custom Attributes`
   - **Property**: `Sprint`
   - **Value**: `Backlog`
3. Click **Apply** to apply the filter immediately or **Save and apply** to save the filter for future reuse.

Mapping JIRA Agile Priority values to Silk Central's Priority

The default `Priority` values of JIRA Agile's user stories are mapped to Silk Central's `Priority` property as follows:

- Blocker=SC_Priority_Critical
- Critical=SC_Priority_High
- Major=SC_Priority_Medium
- Minor=SC_Priority_Low
- Trivial=SC_Priority_Low

If you are not using JIRA Agile's default `Priority` values, or if you want to customize the mapping, your Silk Central administrator should customize the settings as follows:

1. Stop the application server.
2. Open the file `propertyMappings.properties` with a text editor. This file is located in the JIRA Agile plugin-file `JIRAAgile.zip` on the application server in the `plugins` folder.
3. Search for `SC_Priority=Priority`, beneath which you can customize the mapping of JIRA Agile's `Priority` values to Silk Central's `Priority`.

Note: Silk Central `Priority` values require the prefix `SC_Priority_`.

4. Save and close the file
5. Re-start the application server.

IBM Rational DOORS Integration

This section describes how to integrate Silk Central and IBM Rational® DOORS® (DOORS).

Installing IBM Rational DOORS on the Front-End Server

To integrate Silk Central and DOORS, install the DOORS client on the Silk Central front-end server machine. If you use more than one front-end server machine, you must install the DOORS client to the same directory on each of the machines.

To install the DOORS client on the Silk Central front-end server machine:

1. In the menu, click **Help** > **Tools** .
2. Click **Silk Central Add-In for IBM Rational DOORS** to download the DOORS plug-in package.
   The package contains two ZIP-Archives:
   - `DoorsRM.zip`
   - `DoorsClientLibs.zip`
3. Create a new folder with the name `testmanager` in the …`\lib\dxl` folder of your DOORS client installation.
   The default path for this folder is `C:\Program Files (x86)\IBM\Rational\DOORS\<version>`.
4. Extract all DOORS script files from `DoorsClientLibs.zip` to this folder.

The plug-in package `DoorsRMPlugin.zip` is automatically installed to the `Plugins` folder of your Silk Central application server installation during the setup process. During startup of the application server, this plug-in will be published to all front-end servers.

Enabling Integration with IBM Rational DOORS

To enable integration with DOORS:

1. In the menu, click **Projects** > **Project List**.
2. Select the project to which you want to establish integration.
3. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
4. Click the **Requirements Management** tab.
5. Click **New Integration**.

   Note: To enable creation and editing of unmapped requirements within the integrated requirements, check the **Allow internal requirements** check box.

   The **New Integration** dialog box opens.
6. Select **IBM Rational DOORS** from the list and click **Next**. The **Edit Configuration** dialog box opens.
7. Type a **Name** for the new profile.
   This is the name that is displayed in lists where the profiles are available for selection.
8. In the **RM service URL** text box, type the URL of the Silk Central DOORS requirement Web Service.
   The default value should point to the correct location already. For example `http://MySCTMHost:19120/services/doorsrequirementsmanagement`.
9. Type valid **Username** and **Password** credentials for the requirements management server.

10. The default DOORS client installation path is displayed in the **DOORS Installation Path** text box. If this path is not correct, click **Browse** to browse to and select the correct destination in the front-end server directory structure.
11. Click **Test Connection** to confirm that the host and user credentials you have entered are correct.

    A **Connection successful** message box displays if the settings are correct. Click **OK** to continue.

    Note: Consult your system administrator if you are not able to establish a connection.
12. Click **Browse** next to the **Project name** text box to open the **Browse Requirement Types** dialog box. From the **Project** text box, select the external project with which the Silk Central project is to be synchronized.

    The requirement types that are available with the selected project are automatically populated into the **Requirement types** text box. Select the requirement types that are to be synchronized and click **OK**. Use `CTRL` + `CLICK` to select multiple requirement types.

    Your selections are now displayed on the **Edit Configuration** dialog box.
13. Click **OK** to save your settings.

    Caution: As the DOORS application object is used for communication, and this object does not support login data, but rather requires a running DOORS client, Silk Central starts each DOORS client process with the provided login data and then uses that same data for all subsequent application objects. Therefore only one set of DOORS login credentials is supported for communication at one time. It is recommended that you use the same DOORS credentials for all configurations so that integration tasks can be performed on the front-end server for all projects at the same time. When a second set of credentials is used, the second set only works after all sessions using of the first set of credentials have timed out.

IBM Rational RequisitePro Integration

The topics in this section describe the integration between IBM Rational RequisitePro and Silk Central.

Enabling Integration with IBM Rational RequisitePro

Note: You can only configure one IBM Rational RequisitePro integration per project.

To enable integration with IBM Rational RequisitePro:

1. In the menu, click **Projects** > **Project List**.
2. Select the project to which you want to establish integration.
3. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
4. Click the **Requirements Management** tab.
5. Click **New Integration**.

   Note: To enable creation and editing of unmapped requirements within the integrated requirements, check the **Allow internal requirements** check box.

   The **New Integration** dialog box opens.
6. Select **IBM Rational RequisitePro** from the list and click **Next**. The **Edit Configuration** dialog box opens.
7. Type a **Name** for the new profile.

   This is the name that is displayed in lists where the profiles are available for selection.
8. Type the **Project path (UNC)** to the machine where the external server is installed.
9. Type valid **UNC username** and **UNC password** credentials for the machine where the external server is installed.

10. Type valid **Username** and **Password** credentials for the requirements management server.
11. Click **Test Connection** to confirm that the host and user credentials you have entered are correct.

    A **Connection successful** message box displays if the settings are correct. Click **OK** to continue.

    Note: Consult your system administrator if you are not able to establish a connection.
12. Click **Edit Packages and Requirement Types**.

    Your selections are then displayed on the **Edit Configuration** dialog.

    Note: Only requirements of explicitly selected packages will be synchronized. Selecting a parent package does not select the child packages of the parent.

    The **Browse Packages & Requirement Types** dialog box opens. The packages and requirement types that are available with the selected project are automatically populated into the **Packages** and **Requirement Types** list boxes.
13. From the **Packages** list box, select one or more packages from the external project that should be integrated with the Silk Central project.

    Use `CTRL + CLICK` to select multiple packages.
14. From the **Requirement types** list box, select one or more requirement types from the external project that should be integrated with the Silk Central project.

    Use `CTRL + CLICK` to select multiple requirement types.
15. Click **OK**. The **Browse Packages & Requirement Types** dialog box closes.
16. Click **OK** to save your settings.

Rally Integration

Integrating the project management tool Rally enables you to define user stories which you can then use as requirements in Silk Central. You can then create tests in Silk Central to cover these requirements. To update the tests you have created with any changes to the corresponding user stories in Rally, synchronize the requirements.

The following user story properties are synchronized from the Rally REST Service. You can use these properties to help filter and categorize the user stories.:

Property	Description
Name	The name of the user story in Rally.
Rally ID	The identifier of the user story in Rally. This property is the External ID of the requirement in Silk Central.
Description	The description of the user story in Rally.
Iteration	The iteration in Rally in which the user story is included.
Project	The project in Rally in which the user story is included.
Release	The project release in which the user story is included.
State	The state of progress of the user story in Rally. The following states are available: • `Defined` • `In-Progress` • `Completed` • `Accepted`
Plan Estimate (Story Points)	The estimated time in Rally for the user story to be completed. The time is estimated in story points.

Enabling Integration with Rally

To enable integration with Rally:

1. In the menu, click **Projects** > **Project List**.
2. Select the project to which you want to establish integration.
3. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
4. Click the **Requirements Management** tab.
5. Click **New Integration**.

   Note: To enable creation and editing of unmapped requirements within the integrated requirements, check the **Allow internal requirements** check box.

   The **New Integration** dialog box opens.
6. Select **Rally** from the list and click **Next**. The **Edit Configuration** dialog box opens.
7. Type a **Name** for the new profile.

   This is the name that is displayed in lists where the profiles are available for selection.
8. Type the **URL**.
9. Type valid **Username** and **Password** credentials for Rally.
10. *Optional:* If direct access to the Internet is restricted, and the Rally REST service is located in a machine outside the scope of the internal network, use the **Proxy Host** and **Proxy Port** text boxes to specify a proxy through which Silk Central can connect to Rally .

    Note: To connect to Rally by using a proxy, you need to fill out both text boxes, **Proxy Host** and **Proxy Port**.
11. Click **Test Connection** to confirm that the host and user credentials you have entered are correct.

    A **Connection successful** message box displays if the settings are correct. Click **OK** to continue.

    Note: Consult your system administrator if you are not able to establish a connection.
12. Click **OK**.
13. Click **Load**. The **Project** list box is populated with all the projects from all workspaces in Rally that you have permissions for.
14. From the **Project** list box, select the external project with which the Silk Central project is to be integrated.
15. Click **OK** to save your settings.

Generating Tests from External Requirements

From the RMSs currently shipped with Silk Central, only CaliberRDM supports generating tests. If you want to use another RMS to generate tests, the RMS must be able to generate tests. The Silk Central plug-in API includes a method to verify that the RMS is able to create tests. For more information, see *Requirements Plug-In API Interfaces*.

To generate tests from external requirements:

1. Establish integration with the external requirement system.

   For additional information, see *Enabling Integration with Caliber*.
2. Select the requirement in the **Requirements** tree from which you wish to generate tests.

   Note: To be able to generate tests, the RMS plug-in needs to implement the `RMTestProvider` interface, and the interface method `isTestGenerationSupported` needs to return `true` for the type of the selected requirement.

3. Click **Generate Tests**. The **Generate Tests** dialog box displays.
4. Use **SHIFT + CLICK** or **CTRL + CLICK** to select the tests that you want to generate.
5. Click **Generate All** to generate all tests, or click **Generate Selected** to generate the selected tests. The **Tests** tree displays.
6. Select the folder to which you want to add the generated tests.

   Note: Tests that already exist in the selected destination folder are not created, but updated. No tests in the folder are deleted.
7. Click **OK**.

Working with External Properties

This section explains how to work with external properties in Silk Central.

Editing External Properties

To edit external properties:

1. In the menu, click **Requirements** > **Details View** .
2. Select the requirement for which you intend to edit external properties.
3. Click the **Properties** tab. The **Properties** page displays the properties of the selected tree-element.
4. Click **Edit External Properties**.

   The **Edit External Properties** dialog box displays. All properties of the external requirement are displayed here. Edit all properties as required.

   Note: Editable properties on this dialog box offer input fields and controls with which you can edit the properties. If a mapping rule exists for an attribute, the attribute will be tagged with a trailing asterisk (*).
5. Click **OK** to save your changes and close the dialog box.

Viewing External Properties

To view external properties:

1. In the menu, click **Requirements** > **Details View** .
2. Select the requirement.
3. Click the **Properties** tab. The **Properties** page displays the properties of the selected tree-element.
4. Click **View External Properties**. The **View External Properties** dialog box displays. All properties of the external requirement are displayed here.
5. Close the dialog box.

Editing Property Mapping

The property-mapping functionality allows you to map property fields between Silk Central and external requirements-management tools. For example, a custom requirement property in Silk Central called `User` might be equivalent to a custom property in Caliber called `User_ID`. The property-mapping feature ensures that requirement-property fields are accurately populated between projects during requirement uploading and importing. If there are multiple requirement types, you must map each type separately.

Note: If you don't use the property mapping feature, only the name and the description of the requirements are mapped.

To edit property mapping:

Note: The following applies for synchronizing properties with boolean values: since Silk Central does not support the boolean data type, you need to create a single select list with the following two list items:

- Name = `Yes`, Numeric Weight = `1`
- Name = `No`, Numeric Weight = `0`

Note: When you map lists, requirement properties from both products need to have the same named options for each list item, and they are case sensitive.

1. Select the project.
2. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
3. Click the **Requirements Management** tab.
4. Click **Edit Property Mapping** for the configured external tool. The **Edit Property Mapping** dialog box opens.
5. Select an external requirement type from the **Requirement types** list. All custom requirements of that type are then displayed below in the selection box.
6. Select the custom requirement property for which you are establishing mapping.
7. From the list box on the right, select the Silk Central custom property to establish mapping to the external custom property you have selected.
8. Click **Add Mapping** to map the requirements. The results are displayed in the **Custom property mapping** box.
9. The **System property mapping** box displays the two pre-configured mappings for requirement name and description, which cannot be removed.
10. Click **OK** to save your changes.

Deleting Property-Mapping Value Pairs

To delete a property-mapping value pair:

1. Select the project.
2. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
3. Click the **Requirements Management** tab.
4. Click **Edit Property Mapping** for the configured external tool. The **Edit Property Mapping** dialog box opens.
5. Select the property-mapping value pair in the **Custom property mapping** select box.
6. Click **Remove Mapping**.
7. Click **OK** to save your changes.

Disabling Requirements-Management Integration

To disable requirements-management integration configuration:

1. Select the project.
2. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
3. Click the **Requirements Management** tab.
4. Click the **Disable Configuration** button of the requirements-management tool for which you want to disable integration.

All integration data and functionality is disabled, but not deleted from the project.

Removing Requirements-Management Integration

To remove requirements-management integration:

1. Select the project.
2. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
3. Click the **Requirements Management** tab.
4. Click **Remove Configuration** of the requirements-management tool for which you want to remove integration.

   This button is only enabled if the configuration is disabled.

   The **Remove External Association** dialog box displays.
5. Click **Yes**.

All related data is removed from the database.

Tests

This section explains how to manage tests in Silk Central.

The **Tests** area enables you to maintain control over tests across the system development life-cycle. You can create, schedule, and manage both automated tests and manual tests. You can upload and associate files and links as attachments to test containers and tests. You can easily associate found issues with the tests that led to their discovery. You can also track the full change history of the test in the area.

Tests Document View

Tests > **Document View**

The **Document View** provides a high-level view of the important information, the status, and the last executions of all tests in the selected project.

For each test container, test folder, and test, the **Document View** displays the following columns:

Item	Description
Status	The status of the last test execution. • Passed • Failed • Not Executed • N/A For test containers and folders, a status bar displays the number of tests with the corresponding status.
Tests	Number of tests .
Planned Time	Roll up of **Planned Time** of the manual tests.
Assigned Issues	Number of Issues assigned to the test.
Last Execution	Time of the last execution of the selected test or project.
Last Build	Build on which the last execution was performed.
Changed On	Last time the selected test element was changed.

Item	Description
Changed By	User that changed the selected test element for the last time.

Working with the Tests Tree

Tests > **Details View**

As with requirements, tests are displayed, organized, and maintained through a hierarchical tree structure, the **Tests** tree. The **Tests** tree enables you to organize tests in any number of hierarchy levels. Each node in the tree represents either a test, a test folder, or a test container.

In the **Contents** page you can view, cut, copy, and paste the child elements of any selected test element. The page supports standard Windows Explorer style multi-select functionality.

Note: When the **Tests** tree includes more elements than can be displayed at once without impacting response time, elements are displayed in increments. Page number links at the bottom of the tab allow you to browse through the elements included on the tab one page at a time. To display all elements as a single list, click the **[All]** link.

Expanding or Collapsing the Tests Tree

You can consolidate levels of the **Tests** tree or display all levels of the tree based on your viewing needs.

To collapse or expand levels of the **Tests** tree:

1. In the menu, click **Tests** > **Details View** .
2. Select the test container or test folder in the **Tests** tree and continue with one of the following options:
   - Click ▷ to the left of the name of the test element to expand the element.
   - Click ◢ to the left of the name of the test element to collapse the element.
   - Right-click on the element and select **Expand** or **Collapse**.

Cutting, Copying, Pasting, and Deleting Test Elements

The toolbar in the **Tests** area enables you to easily cut, copy, paste, and delete test elements within the **Tests** tree, both within the current project and between projects. These editing functions simplify the process of building and managing the tests of your project.

The data types that are copied along with tests and test folders are properties, attributes, parameters, and attachments. Assignments, issues, runs, and history are not copied.

Tip: In the **Contents** page, you can view, cut, copy, and paste the child elements of any selected test element. The page supports standard Windows Explorer style multi-select functionality. Before you can paste a test element into the **Contents** page you must explicitly select an element within the page to gain the application's focus.

Note: Containers cannot be copied or pasted.

To cut, copy, paste, or delete a test element:

1. In the menu, click **Tests** > **Details View** .
2. In the **Tests** tree, select the container, folder, or test that you wish to edit.
3. Click the appropriate toolbar button:

Button	Description
✕	Deletes the selected element from the tree.

Cuts the selected element from the tree and moves it to the clipboard.

Copies the selected element to the clipboard.

Pastes a copy of the element held on the clipboard to the same level of the currently selected element.

Pastes a copy of the element held on the clipboard as a sub-node of the currently selected element.

Note: The commands are also available through the context menu in the **Tests** tree.

Copying and Pasting a Test Element from One Project to Another

To copy and paste a test folder or test between projects:

1. In the menu, click **Projects** > **Project List**.
2. Select the source project.
3. In the menu, click **Tests** > **Details View** .
4. Click to cut or to copy the element to the clipboard.
5. In the menu, click **Projects** > **Project List**.
6. Select the destination project.
7. Select the destination container and folder.
8. Click .

Note: The commands are also available through the context menu in the **Tests** tree.

Reordering Test Elements

To reorder a test, test folder, or test container:

1. In the menu, click **Tests** > **Details View** .
2. In the **Tests** tree, select the test element that you wish to reorder.
3. Click to move the test element up one step or click to move the test element down one step.

Setting a Test Node as Integration Default for External Agile Planning Tools

To use the Web service calls to create tests in Silk Central through an external agile planning tool, set a folder or container in the **Tests** tree as the integration default node, where the Web service will create the test. If you do not specify the integration default node, an error message box displays.

To specify the integration default node in the **Tests** tree:

1. In the menu, click **Tests** > **Details View** .
2. In the **Tests** tree, select the folder or container which you want to set as the integration default node.
3. Right-click the folder or container and select **Set as Integration Default**.

   Note: If an integration default node already exists, the default node is changed to the new node.
4. The integration default node is set to the selected node, enabling the agile planning tool to create tests at this location.

   Note: The integration default node is shown in the **Properties** page of the project, in which the node is located.

The integration default node is set to the selected node, enabling the agile planning tool to create tests at this location.

Note: The integration default node is shown in the **Properties** page of the project, in which the node is located.

Filtering on a Folder or Container

To filter on a folder or container:

1. In the menu, click **Tests** > **Details View** .
2. Right-click the folder or container in the tree that you want to filter and select **Filter Subtree**. The tree displays only the contents of the selected folder or container and the hierarchy up to the root node of the tree.

Note: To remove filtering and display all elements, select **<No Filter>** from the **Filter** list box on the toolbar. Empty folders are not shown in the filtered sub-tree.

Test Properties Page

Tests > **Details View** > **Properties**

The **Properties** page offers detail on all properties and relevant information for the selected test, test folder, test package, or test container. For test nodes, the following properties are configured when tests are created:

Property	Description
Test Name	Name of the test.
Test ID	Database identifier of the test.
Description	Description of the test. **Note:** Silk Central supports HTML formatting and cutting and pasting of HTML content for **Description** text boxes.
Status	For tests or test packages that are included in a configuration suite, the status is an aggregation of all statuses of all configurations within the suite: • If the test is assigned only to the configuration suite, the status is `Passed` only if it is passed in all configurations. If the status is not `Passed` in all configurations, the status of the worst run is propagated, with the following top-down priority: **1.** N/A **2.** Not Executed **3.** Failed **4.** Passed The status of a requirement that is assigned to the test is `Failed` if the test fails in one or more of the configurations. • We do not recommend assigning the test to a configuration suite and one or more simple execution plans. However, in this case, the aggregate of the configuration statuses is one status, and the last

<table>
<tr><th>Property</th><th>Description</th></tr>
<tr><td></td><td>statuses of the execution plans are other statuses. The status that was executed last determines the last status of the test.
• If the test is assigned to a simple execution plan only, the status is updated in response to the status of the last test run.</td></tr>
<tr><td>Last Execution</td><td>Last time this test was executed. For tests that are part of a running execution plan, the last execution is updated based on the current test run.</td></tr>
<tr><td>Assigned Executions</td><td>Lists all execution plans that the selected test is assigned to. For each execution plan in the list, the grid displays the following columns:
Column — Description
Execution — Name of the execution plan. Click to view or edit the execution plan.
Status — The status of the last run of the test in the execution plan. The status is <code>Not Executed</code>, if the test was not executed in the last run of the execution plan. For data-driven tests or test packages, the status of all last runs is displayed in a bar graph.
Last Execution — Last time the test was executed as part of the execution plan.
Execution Plan Parent — The configuration suite, folder, or testing cycle in the context of which the execution plan is executed. Click to access the suite or folder in the Execution Plans tree. If the execution plan is not included in a configuration suite or folder, nothing is displayed.</td></tr>
<tr><td>Created On</td><td>Date and time the test was created.</td></tr>
<tr><td>Created By</td><td>Name of the user who created the test.</td></tr>
<tr><td>Changed On</td><td>Date and time the test was last changed.</td></tr>
<tr><td>Changed By</td><td>Name of the user who last changed the test.</td></tr>
<tr><td>Planned Time [hh:mm]</td><td>Planned execution time of the test. Only for manual tests.</td></tr>
<tr><td>Test Properties</td><td>Test properties that are specific to the test type.</td></tr>
<tr><td>Success Conditions</td><td>All success conditions that have been configured for the test. For test package nodes, all success conditions except the execution time-out are disabled and hidden.</td></tr>
<tr><td>Integration Default Folder</td><td>Shows the name of the default container or folder, where tests from external RMSs are created.</td></tr>
</table>

Test Contents Page

Tests > **Details View** > **Contents**

The **Contents** page displays the child elements of the selected project, test container, or folder in the **Tests** tree. The page supports Standard Windows Explorer style multi-select functionality.

Tip: To drill down into the selected folder or container, press **Enter** or double-click the selected item. Press **Backspace** or click on the toolbar to navigate one level up.

Note: You cannot copy or paste a test container.

For each child element of the selected project, test container, or folder, the **Contents** page displays the following columns:

Column	Description
Name	Name of the test element.
Changed On	Date the test element was last edited.
Changed By	User who last edited the test element.

Tip: As with test elements listed in the **Tests** tree, you can right-click the elements listed on the **Contents** page to access context-relevant commands through a context menu. Commands that are not available are grayed out. Before you can paste a test element into the **Contents** page you must explicitly select an element within the page to gain the application's focus.

Note: When the **Contents** page includes more elements than can be displayed at once without impacting response time, elements are displayed in increments. Page number links at the bottom of the page allow you to browse through the elements included on the page one page at a time. To display all elements as a single list, click the **[All]** link.

The **Contents** page supports the following keyboard functions (shortcuts) for test elements:

Key	Normal	SHIFT	CTRL
Up	Move selection up	Extend selection up	Move up
Down	Move selection down	Extend selection down.	Move down
Left	Deselect		
Right	Deselect		
A			Select All
X			Cut
C			Copy
V			Paste
Pos1	Select first item	Select up to first item	
End	Select last item	Select down to last item	
Del	Delete		
F2	Edit		

Keyboard Functions for Test Elements

The following mouse and keyboard combination functions are available. Following these functions, actions like cut, copy, or paste can be performed on the selected nodes:

Keyboard Function	Description
Click	Select a row and remember it as the current row.
Ctrl+Click	Toggle the selection status of the clicked row and remember it as the current row.
Shift+Click	Select the span from the currently-selected row to a newly selected row.
Ctrl+Shift+Click	When a row is already selected, this function adds the span from the current row to the clicked row to the selection. If no row is currently selected, this function removes the span from the current row to the clicked row from the selection and selects the clicked row.

Note: Containers cannot be copied or pasted.

Test Toolbar Functions

Tests > **Details View**

The test toolbar provides important commands for managing your tests.

Note: The commands in the test toolbar are also available through context menus in the **Tests** tree.

The following commands are included in the test toolbar:

Command	Icon	Description
Document View		Displays the **Document View**, which shows selected properties of all test elements in a single view.
Details View		Displays the **Details View**, which enables you to drill deeply into the properties of a single test.
Grid View		Displays the **Grid View**, which shows all tests in a grid.
Up		Navigates one level up in the hierarchy of the navigation tree, regardless of the current cursor focus.
New Test Container		Enables creation of new test containers.
New Child Test Folder		Enables creation of new test folders as sub-nodes of the selected folder or container.
New Child Test		Enables creation of new tests as sub-nodes of the selected folder or container.
Edit		Edit the selected test element.
Create Version		Create a new version of the selected manual test.
Delete		Delete the selected test element.
Cut		Cut a test element from the **Tests** tree and save it to the clipboard.
Copy		Copy a test element from the **Tests** tree to the clipboard.
Paste		Paste a test element from the clipboard to the **Tests** tree.
Paste as Child		Paste a test element from the clipboard as a child element to the currently selected test element.

Command	Icon	Description
Move Up		Move a test element up within the **Tests** tree.
Move Down		Move a test element down within the **Tests** tree.
Find		Search through all test elements in the active project based on configurable parameters.
Replace		Replace instances of found values with a new value.
New Filter		Create a new custom filter for the **Tests** tree.
Filters		Lists the available filters for the **Tests** tree
Edit Filter		Edit the currently selected custom filter.
Delete Filter		Delete the currently selected custom filter.
Copy Filter		Copy the currently selected custom filter.
Show Changes		Show recent changes to the tests.
Acknowledge		Acknowledge changes to the tests.
Download as XLSX		This function is enabled in the **Document View** and **Grid View**. In the **Document View**, the action generates an Excel sheet that includes all currently visible rows. In the **Grid View**, the action generates an Excel sheet that includes all rows, not just the visible ones.

Test Reports

This section explains the test-related reports that ship with Silk Central. Test reports give you an overview of the progress of your tests and the status of defects over a period of time or over a range of builds.

Status Reports

The following status reports are available for the **Tests** area:

Report	Description
Test Status Overview	Represents a status overview of all tests, structured by the statuses `Passed`, `Failed`, `Not Executed`, and `N/A`.
Test Status Overview (per test container)	Represents a status overview of all tests contained in a specific test container, structured by the statuses `Passed`, `Failed`, `Not Executed`, and `N/A`.
Tests per Component	Represents an overview of coverage of components by test; makes it easier to see where testing activity is needed.
Tests (per test container)	Represents a success rate for each test container by listing the number of passed tests.
Implemented Tests (per component)	Represents an overview of coverage of components by tests that have the *Implemented* attribute set to `Yes`.
Failed Tests (per component)	Represents an overview of failed tests per component; makes it easier to identify the most critical components in the environment.

Progress Reports

The following progress reports are available for the **Tests** area:

Report	Description
Test Progress Across Builds 'X' and 'Y'	Represents a trend in test progress resulting from viewing test statuses in context with builds. The user must specify a build range consisting of a start- and an end-build.
Manual Test Coverage since Build <x> (cumulative)	Represents a trend in manual test progress, excluding all kind of automated tests, resulting from viewing test statuses in context with builds. The user must specify a starting build number which is used as basis for calculating a cumulative progress.
Automated Test Coverage for Builds (non-cumulative)	Represents the automated test coverage resulting from viewing test statuses in context with builds. The user must specify a version and a product and the report shows the test coverage that could be achieved with the automated tests per build.
Test Progress this Month	Represents a trend in test progress resulting from viewing test statuses for the current month.
Specific Test Node Progress Over the Past 'X' Days	Represents a trend in requirements coverage by considering a specific test node over the past 'X' days.
Tests Created in the Past 'X' Days (per component)	Represents a listing of new tests per component over the past 'X' days. Assists in identifying components that lack testing activity.
Test Progress Over the Past 'X' Days	Represents a trend in test progress by considering test statuses over the past 'X' days.
Percentage Testing Success Over the Past 'X' Days (per component)	Represents a percentage listing of successful tests per component over the past 'X' days; assists in identifying the components in the environment that are most critical.

Manual Test Reports

The following manual-test reports are available for the **Tests** area:

Report	Description
Planned vs. Actual Execution Time of Manual Tests (Summary)	Represents an overview of the deviation between planned and actual time for execution of manual tests, viewed on a daily basis.
Historic Planned vs. Actual Execution Time (per user)	Represents an overview of planned and actually required execution time for completed manual tests per user over a specific period of time.
Planned vs. Actual Execution Time (status per user)	Represents progress in terms of planned vs. actual hours of currently pending manual tests per user. Manual tests are only considered if test results have been entered by the user and are assigned to the user who enters the results.
Manual Test Result Document	An easily printable manual test case report for the latest results of all tests assigned to the specified execution plan.
Manual Test Result Document (Microsoft Word)	An easily printable manual test case report for the latest results of all tests assigned to the specified execution plan in a Microsoft Word document.
Manual Test Results by Execution Plan	An easily printable manual test case report for the latest results of all tests assigned to the specified execution plan folder or testing cycle.

Baseline Comparison Report

Reports > **Details View** > **<Active Project>** > **Test** > **Baseline Comparison** > **Baseline Comparison**

The *Baseline Comparison* report compares a baselined project with the baseline and displays the number of changed, deleted, and created tests.

Input Parameters

The input parameters for the *Baseline Comparison* report are the identifiers of the project and the baseline.

General Report Information

This section provides a description of the report and the name of the user who executed the report.

Project and Baseline Information

This section provides the information on the project and the baseline, including data related to the creation of the baseline.

Project and Baseline Summary

This section provides a sum of the created, changed, and deleted tests in the baseline and the project, in both tabular and graphical form.

Changes

This section provides a detailed list of all changed tests in the project and the baseline, with links to the tests.

Test Run Comparison Report

Test run-comparison reports present an overview of the comparison between two runs of a test.

Note: Run-comparison reports are not suitable for the comparison of manual tests to automated tests. When the name of the report includes *(Last Two Runs)*, you can compare only the last two runs of the execution plan or test.

The test run comparison report provides the following information:

- Changes to the status of the test
- Number of errors
- Number of warnings
- Context in which the test was executed
- Execution duration of the assigned tests
- Attributes and properties of the test
- Parameters of the test
- Success conditions for the test

General Report Information

This section provides the following general information about the report:

Element	Description
Project Name	Name of the active project.
Report Description	Description of the report.

Element	Description
Report Executed By	User who executed the report.

Test Information

This section provides the following information about the test:

Element	Description
ID	Identifier of the test.
Name	Name of the test.
Description	Description of the test.

Execution Information

This section provides the following information about each execution:

Element	Description
Execution ID	ID of each execution plan.
Execution Name	Name of each execution plan.
Run ID	ID of each execution plan run.
Product	Name of the product.
Version	Version of the product.
Build	Build of the product.

Test Run Comparison

This section identifies the following differences between the two runs:

Element	Description
Status	Status of each run.
Execution Timestamp	Timestamp of each run.
Duration	Duration of each run.
Errors	Number of errors in each test run.
Warnings	Number of warnings in each test run.
Previous Status	Status of each run previous to the last manual change.
Changed by	User who performed the last manual change to the status.
Change Comment	Describes the reason of the manual status change.

Attributes and Properties

This section identifies the attributes and properties of the two runs of the test at execution time.

Parameters

This section lists the parameters of the two runs of the test at execution time.

Success Conditions

This section lists the conditions at execution time for each of the two runs to be considered successful. If a condition is not satisfied, the test run is considered unsuccessful. Satisfied conditions are marked green, while unsatisfied conditions are marked red.

Success Conditions

Use success conditions to determine whether a test is successful or not. You can assign one or more success conditions to each test node or suite node in the **Tests** area. If a success condition is not met during the execution of the test it is assigned to, the execution run is marked as `Failed`, except for the execution time-out success condition, for which the test execution is marked as `Not Executed`. For a test package, all success conditions except the execution time-out are disabled and hidden.

In **Details View**, when you select a node in the **Tests** tree, the **Success Conditions** table in the **Properties** page of the node displays all success conditions that are configured for the selected node. The table includes the name of each condition, whether or not the condition is active, the maximal value of the condition, and whether or not the condition is inherited.

A success condition is only evaluated when it is active. To activate and deactivate success conditions see *Editing Success Conditions*. The available types of success conditions differ depending on the test type. The following success conditions are currently available in Silk Central:

Success Condition	Description
Errors Allowed	Maximal number of errors allowed for the test. This success condition is active by default.
Warnings Allowed	Maximal number of warnings allowed for the test.
Execution Time-Out [s]	Maximal time-out allowed for the test in seconds.
Page Time: Avg. Page Time [s]	Maximal allowed average time to load a page.
Page Time: Max. Page Time [s]	Maximal allowed maximum time to load a page.
Transaction Response Time: Avg. Trans(Busy)ok [s]	Maximal allowed average response time for a transaction in the test.
Transaction Response Time: Max. Trans(Busy)ok [s]	Maximal allowed maximum response time for a transaction in the test.

The inheritance of success conditions is similar to inheritance of properties. Success conditions that are assigned to a parent node are inherited throughout all sub-folders and child tests.

Editing Success Conditions

In **Details View**, when you select a node in the **Tests** tree, the **Properties** page of the node displays the success conditions that are associated with the node. The **Success Conditions** table includes the name of each condition, whether or not the condition is active, the maximal value of the condition, and whether or not the condition is inherited.

Note: For test package nodes, all success conditions except the execution time-out are disabled and hidden.

To edit the success conditions of a test:

1. In the menu, click **Tests** > **Details View** .
2. In the **Tests** tree, select a test container, test folder, or test.
3. Click the **Properties** tab. The **Properties** page displays the properties of the selected tree-element.
4. Click to the right of the **Success Conditions**. The **Edit Success Conditions** dialog box displays.

5. Uncheck the **Inherit from parent** check box of any success condition you are editing.
6. Edit values as required.
7. Specify if conditions should be active or inactive by checking or un-checking their **Active** check boxes.
8. Click **OK** to save your settings.

Test Containers

This section describes how to use test containers.

Adding Test Containers

Note: We recommend to use test containers with caution, because they bind the product to the source control profile.

To add a new test container:

1. In the menu, click **Tests** > **Details View** .
2. In the **Tests** tree, select the root node to which you want to add the new container as a sub-node.

   Note: Containers cannot be nested, but you can add sub-folders to containers.

3. Click on the toolbar or right-click on the node and choose **New Test Container**.

   You can also right-click on the node and choose **New Test Container**.

   A new container root node is added to the **Tests** tree and the **New Test Container** dialog box displays.
4. Type a **Name** and **Description** for the container.

   Note: Silk Central supports HTML formatting and cutting and pasting of HTML content for **Description** text boxes.
5. Select any pre-defined **Product** that is to be associated with this test container from the list box. For details on adding a product profile, see the *Administration* topics in this Help.
6. Select a pre-defined source-control profile from the **Source Control profile** list box.

   If you do not intent to check out any test sources for the test container, for example if you only have manual tests, select `---`.

   Note: The Silk Central execution servers retrieve the program sources for the tests included in the container from the defined source-control profile. The root node of the source control profile is set in the root node of the test container.
7. *Optional:* Check the **Clear working folder before each test execution** check box.

   If you check the check box, the source control profile working folder is cleared before a test execution is performed. For example, the sources will be checked out before each execution. This check box is unchecked by default.
8. To specify the default root path where the container is to be saved, click **Browse...** and navigate to the location.
9. *Optional:* When Silk Central is integrated with Silk Performer® 7.1 or higher, you can define the **Custom data directory** and **Custom include directory**.

   In Silk Performer, the `Include` directory is divided into a `System Include` directory and a `Custom Include` directory. The `Data` directory is divided into a `System Data` directory and a `Custom Data` directory. For additional information, refer to the Silk Performer documentation.
10. The **Hidden Test Properties** portion of the dialog box allows you to specify the test property types that are to be displayed on the test container's **Properties** page, and the **Properties** pages of all test folders within the container.

    These settings do not affect the display of individual tests.
11. Click **Edit** to adjust the hidden test property settings. The **Hidden Test Properties** dialog box displays.

12. Uncheck the check boxes of all test types for which you want to have properties displayed.
13. Click **OK** to save your settings and close the **Hidden Test Properties** dialog box.
14. Click **Save** to save your settings.

The new container is added to the **Tests** tree.

Adding Links to Containers

In the **Tests** tree, you can add a link to a test container in the same project. Linked test containers are displayed in read-only mode at the position in the tree where the link is inserted.

To add a link to a test container:

1. In the menu, click **Tests** > **Details View** .
2. Right-click the node in the **Tests** tree under which you want the linked test container to display.
3. Choose **New Link** if you want to link the test container at the hierarchy level of the selected node, or choose **New Child Link** to link the test container one level below the selected node. The **Select Test Container For Linking** dialog box displays.
4. Select the test container that you want to reference.

   Note: If the referenced test container and the container in which you add the link use different source-control profiles, a confirmation dialog box displays, asking you if you really want to create the link. Linking inside a test container to another test container with a different source-control profile can lead to problems when you download or execute a test within the linked container. Click **No** if you want to change the custom include directory of one of the containers first, or click **Yes** to create the link anyway.
5. Click **OK** to confirm your selection.

The linked container is placed within the selected container as a read-only entity. Any changes to the original test container will be reflected in the linked container.

Editing Test Containers

To edit the properties of a test container:

1. In the menu, click **Tests** > **Details View** .
2. In the **Tests** tree, select the test container that you want to edit.
3. Click in the toolbar.

   You can also right-click on the test container and select **Edit**.

   The **Edit Test Container** dialog box displays.
4. Edit the properties of the test container.
5. Click **OK** to apply your changes.

Test Folders

This section describes how you can use test folders to organize your tests.

Adding Test Folders

To add a new test folder:

1. In the menu, click **Tests** > **Details View** .
2. In the **Tests** tree, select the test element after which you want to add the new folder.
3. Click on the toolbar.

You can also right-click on the element and choose **New Test Folder** to add the new folder after the selected element or choose **New Child Test Folder** as a sub-node to the selected element.

Note: For test containers you can add test folders only as sub-nodes.

A new folder node is appended to the **Tests** tree and the **New Folder** dialog box displays.

4. Provide a name and description for the folder.

Note: Silk Central supports HTML formatting and cutting and pasting of HTML content for **Description** text boxes.

5. Click **OK** to save your settings.

The new folder is added to the **Tests** tree.

Editing Test Folders

To modify test folder properties:

1. In the menu, click **Tests** > **Details View** .
2. Select the folder in the tree.
3. Click in the toolbar.

   You can also right-click on the test folder and select **Edit**.

   The **Edit Test Folder** dialog box displays.
4. Edit the name and description of the folder as required.
5. Click **OK** to accept your changes.

Sorting Test Folders

To move a folder up or down within the **Tests** tree:

1. In the menu, click **Tests** > **Details View** .
2. Select the folder in the tree.
3. Click on the toolbar to move the folder one step up in the tree or to move the folder one step down.

Test Packages

Test packages provide support for the structure of third-party test types in Silk Central, and consist of a package root as well as an arbitrary hierarchy of suite nodes and test nodes. Test packages also provide users with detailed information about a test execution run. Test packages, suite nodes, and test nodes can be individually assigned, along with their issues and attachments, to requirements. This functionality is similar to the functionality of every other test. After a third-party test is converted into a test package, all tests contained in the package can be run individually. Test nodes and suite nodes contained in a test package are provided with an additional property, the **External ID**.

An advantage of test packages is that the structure can be maintained automatically with every test execution. The structure of a test package can be updated according to the results of its runs. The file `<Silk Central installation folder>\wwwroot\silkroot\xsl\output.xsd` contains an XML schema for the structure of the output XML files of test packages.

Test packages enable the entire functionality of the individual tests, with the following exceptions:

- Test containers that contain test packages cannot be linked.
- Test packages cannot be data-driven because they do not possess data-driven properties.
- All success conditions except the execution time-out are disabled and hidden for test package nodes.

Note: Silk Performer tests, Silk Test Classic tests, and manual tests cannot be converted to test packages, as the structure of these tests is supported in Silk Central by default.

The information that provides the internal structure of a test package is specific, and is no longer consistent when you copy the test package. To reuse a test package, you have to copy the test package, revert the copied package into the parent test, apply the test to your needs, and then convert the changed test to a test package.

Creating a Test Package

To create a new test package out of a third-party test:

1. Run the test once to create the `output.xml` file, which contains the structure of the test package.
   For additional information on executing a test, see *Executing Individual Tests*.
2. In the menu, click **Tests** > **Details View** .
3. In the **Tests** tree, right-click the test and choose **Convert to Test Package**. The selected test is converted to a hierarchy representing the structure of the last execution result.

Using External IDs

You can use **External ID**s to uniquely identify test nodes and suite nodes in test packages. An **External ID** is provided as a property for each test node and each suite node. The automatically generated **External ID** identifies a unique test method by the fully qualified name of the class and the method with an "~" prepended.

For JUnit tests, the following schema is used for the automatically generated **External ID**: `~<package name>.<class name>#<method name>`.

When refactoring JUnit test classes, the automatic generation of the **External ID** is not applicable, because the result information of tests previous to the refactoring will be lost when creating a new test. In this case the **External ID** for the test must be manually defined. The refactored method is re-identifiable, because the **External ID** remains unchanged while moving a JUnit test or changing its name. The **External ID** can be manually set in the source code as an annotation.

The following code example shows such an annotation for JUnit tests:

```
import java.lang.annotation.Retention;
import java.lang.annotation.RetentionPolicy;

@Retention(RetentionPolicy.RUNTIME)
public @interface ExternalId {
  String externalId();
}
```

The annotation can be used in a JUnit test to annotate classes and test methods as shown:

```
import static org.junit.Assert.*;
import org.junit.Test;

import com.borland.runner.ExternalId;

@ExternalId(externalId="JUnit4test")
public class JUnit4test {

  @Test
  @ExternalId(externalId="MyExtId1")
  public void test1() {
    ...
  }

  @Test
  @ExternalId(externalId="MyExtId2")
  public void test2() {
```

```
    ...
  }
}
```

Be aware that using **External ID**s with JUnit runner 'org.junit.runners.Parameterized' is not supported for test methods, because the **External ID** is not unique for repeated runs of a method with different parameters. As a work around an **External ID** could be specified on class level, but must be omitted on method level. An example follows:

```
@RunWith(Parameterized.class)
@ExternalId(externalId="parameterizedWithExtId")
public class TestCaseParameterizedWithExternalId {

  @Parameters
  public static Collection<Object[]> parameterFeeder() {
    return Arrays.asList(new Object[][] {
        { "param_name1", "param_value1" }, // set of parameters per run, type
matching constructor must exist!
        { "param_name3", "param_value3" },
        { "param_name2", "param_value2" },
      }
    );
  }

  private String paramName;
  private String paramValue;

  public TestCaseParameterizedWithExternalId(String paramName, String
paramValue) {
    this.paramName = paramName;
    this.paramValue = paramValue;
  }

  @Test
  public void testWithParams() {
    System.out.println(String.format("run with parameter: name='%s',
value='%s'", paramName, paramValue));
  }

}
```

Note: The setting of the **External ID** for a JUnit test is only possible for tests using JUnit 4.4 or higher.

Reusing a Test Package

The information that provides the internal structure of a test package is specific, and is no longer consistent when you copy the test package. To reuse a test package, you have to copy the test package, revert the copied package into the parent test, apply the test to your needs, and then convert the changed test to a test package.

To reuse the information in a test package:

1. In the menu, click **Tests** > **Details View** .
2. Right-click the test package that you want to reuse in the **Tests** tree and select **Copy**.
3. Select the node in the **Tests** tree to which you want to add the copied test package.
4. Right-click the selected node and select **Paste**, to add the copied package to the same level in the tree, or select **Paste as Child** to add the copied test package as a sub-node to the selected node.

   Caution: The information now contained in the copied test package is not consistent.
5. Right-click the copied package and select **Revert Package to Test**. The package information is removed from the parent test.

6. Edit the test to apply it to your needs.
   For additional information, see *Editing Tests*.
7. Right-click on the edited test and select **Convert to Test Package**.

You now have a copy of the original test package with different properties.

Reverting a Test Package to the Test

Revert a test package to the original test to create a different test package out of the parent node.

Note: Reverting a test package to a test hides run result information at the test level. However, you can still see this information in the timeline view or a result file.

To revert a test package to the original test:

1. In the menu, click **Tests** > **Details View** .
2. Right-click the test package in the **Tests** tree.
3. Click **Revert Package to Test**.

The test package is reverted to the original test.

Cleaning Up a Test Package

To clean up a test package:

1. In the menu, click **Tests** > **Details View** .
2. Right-click the test package in the **Tests** tree.
3. Click **Clean Up Test Package**.

All tests that were not executed during the last execution of the test package are removed from the test package.

Test History

Silk Central provides a complete history of all changes that are made to tests. History information is read-only, and cannot be edited or permanently deleted.

The **Recent Changes** filter, which you can access by clicking on the toolbar, enables you to efficiently view and acknowledge the latest changes and additions that have been made to tests.

Note: When you delete a test element, a change entry is added to the history file of the project to which the test element belongs.

Viewing Recent Changes

To view recent changes to tests:

1. In the menu, click **Tests** > **Details View** .
2. Click to filter out all test elements except those that have been changed since your last change acknowledgement.

   Note: The recent changes filter is selected automatically in the **Filter** list box.
3. When you have reviewed the changes, you can accept them by clicking .
   The acknowledge function resets the recent changes filter.
4. Click again to remove filtering and see all tests.

Note: All test changes generate time-stamped entries in the test history.

Tracking the History of a Test

To track a test element's history:

1. In the menu, click **Tests** > **Details View** .
2. Select the test in the **Tests** tree.
3. Click the **History** tab.

The properties of the test are displayed in tabular format.

Test History Page

Tests > **Details View** > **<Test Element>** > **History**

The **History** page details the revision history of the selected test, test container, folder, or project. It also includes an entry for every project baseline that includes the selected element, with links to the baseline and the corresponding element in the baseline. If the selected element was created as part of a project baseline, the first entry in the **History** page includes links to the original project and the corresponding element in the original project. You can use the links only to access active projects or baselines. For more information on project baselines, see the *Administration* topics in this Help.

For manual tests, the **History** page additionally includes an entry for each version of the selected manual test, and allows you to create new versions, revert to a previous version, and view the changes between two selected versions.

For each change, the page displays the following columns:

Column	Description
Actions	Only for version entries. For a version of a manual test, the actions you can perform are **View Version**, **Revert to Version** and **Delete Version**.
Version	Only for version entries. The version of the manual test.
Comment	A comment on the changes.
Created On	Date and time of the change.
Created By	User that made the change.

Note: When the page includes more elements than can be displayed at once without impacting response time, elements are displayed in increments. Page number links at the bottom of the page allow you to browse through the elements included on the page one page at a time. To display all elements as a single list, click the **[All]** link.

Tests

This section describes how to manage tests in Silk Central.

Creating Tests

To create a new test:

1. In the menu, click **Tests** > **Details View** .
2. Select a container or folder node in the **Tests** tree where you want to insert a new test.
3. Click (**New Child Test**) on the toolbar or right-click within the tree and choose **New Child Test**.

   A new test node is appended to the tree view, and the **New Test** dialog box appears.

4. Type a name and description for the test.

   Note: Silk Central supports HTML formatting and cutting and pasting of HTML content for **Description** text boxes.
5. Select the test type from the **Type** list.
6. Click **Next** and proceed to the appropriate topic for the selected test type in *Configuring Test Properties*.

Note: The well-defined public API of Silk Central enables you to implement a proprietary solution that meets your automated test needs. Silk Central is open and extensible to any external tool that can be invoked from a Java implementation or through a command-line call.

Note: Throughout the test configuration process and across all test types, **Inherit from parent** check box options are provided where applicable, enabling you to accept settings of any existing parent entity.

Editing Tests

To edit a test:

1. In the menu, click **Tests** > **Details View** .
2. Select the test or the test package that you want to edit.
3. Click (**Edit**) on the toolbar.

   You can also click the **Properties** tab and click **Edit** or right-click the test or test package and select **Edit**.

   The **Edit Test** dialog box appears.

   Note: Silk Central supports HTML formatting and cutting and pasting of HTML content for **Description** text boxes.
4. Edit the name and description of the selected test.

   If the selected test is a test package, the **Update Package Structure on Result** check box is available. Check the **Update Package Structure on Result** check box if you want to update the structure of the test package according to the results of the test execution run.
5. Configure the properties of the test or the test package according to the test type as described in *Configuring Test Properties*.

Executing a Trial Run of a Test

You can perform a trial run of a test to check if the test works as intended.

To perform a trial run of a test:

1. In the menu, click **Tests** > **Details View** .
2. Right-click the test that you want to try out in the **Tests** tree.
3. Select **Try Run Test**.
4. The **Go To Activities** dialog box displays. Click **Yes** if you want to analyze the results on the **Activities** page, or click **No** if you want to remain on the current Web page.

   For additional information, see *Activities*.

   Note: Check the **Don't show this dialog again (during this login session)** check box if you don’t want to be asked about switching to the **Activities** page again in the future. This setting will be discarded when you log out of Silk Central.

Configuring Test Properties

This section describes how to configure the test properties for each available test type.

Finding Test Properties

The **Find** command in the **Tests** area enables you to locate test property values that meet specified search criteria. Use the **Next**, **Previous**, **First**, and **Last** functions to step through the results of a search for a specified property value. **Find** is enabled across all Silk Central plug-ins and functional categories.

Note: Data-driven test property values can be found using the **Find** command.

Note: When the **Tests** tree is constrained by a filter, **Find** is only executed against those tests that are presented in the **Tests** tree after filtering.

To find a specific test property value:

1. In the menu, click **Tests** > **Details View** .
2. Click on the toolbar. The **Find** dialog box opens.
3. From the **Category** list box, select the functional category or Silk Central plug-in across which you want to search.

   Tip: When you define a custom plug-in property, it is automatically added to the list.
4. From the **Find in** list box, select the property within which the query should search for the value.

   The properties available in this list vary based on the selected category.
5. In the **Find what** text box, type the alphanumeric string the query should search for.

   Optional settings are available for qualifying the query further. Check the check boxes of those that are appropriate:
6. Choose the location in the **Tests** tree where the search should begin.

   The following options are available:

Option Button	Description
Start from selection	Specifies that the search begins from the currently selected test element.
Start from top	Specifies that the search begins from the root of the **Tests** tree.
Find in subtree only	Specifies that the search runs only in the sub-tree which has the currently selected element of the **Tests** tree as its root node.

7. Check the appropriate check boxes to further qualify the query.

   The following check boxes are available:

Check Box	Description
Case sensitive	Specifies that the string is searched case-sensitively. **Note:** When using a case sensitive SQL Server, case-insensitive searching is not supported for the following fields: • Test description • Manual step description • Manual step action description • Manual step expected results
Match whole word only	Specifies that search results only include complete standalone instances of the query string.
Include read-only values	Specifies that search results include text strings that cannot be directly edited because they are inherited from another test, referenced from a linked test container, or called from a data source in the course of data-driven testing.

8. Click **Find** to begin the search and advance to the first test container, test folder, or test returned by the query.

9. If your query returns multiple test elements, you are presented with options to advance through the elements.

   Note: The **Find** command allows you to search test elements where the search string is an inherited value.

Replacing Test Properties

The **Replace** command enables you to replace identified property values with new values. **Replace** is enabled across all Silk Central plug-ins and functional categories.

Note: Data-driven test property values cannot be replaced using the **Replace** command.

Note: When the **Tests** tree is constrained by a filter, **Replace** is only executed against those tests that are presented in the **Tests** tree after filtering.

To replace an identified test property value:

1. In the menu, click **Tests** > **Details View** .
2. Click on the toolbar.

   The **Replace** dialog box opens.
3. From the **Category** list box, select the functional category or Silk Central plug-in across which you want to search.

   Tip: When you define a custom plug-in property, it is automatically added to the list.
4. From the **Find in** list box, select the property within which the query should search for the value.

   The properties available in this list vary based on the selected category.
5. In the **Find what** text box, type the alphanumeric string the query should search for.

   Optional settings are available for qualifying the query further. Check the check boxes of those that are appropriate:
6. In the **Replace with** text box, type the alphanumeric string with which you want to replace the found values.
7. Click **Find** to begin the search and advance to the first test container, test folder, or test returned by the query. Or click **Replace all** to replace all instances of the queried string with the replacement string.
8. If your query returns multiple test elements, you are presented with options to advance through the elements.

   Note: The **Replace** command does not allow you to search test elements where the search string is an inherited value.

Configuring Silk Test Classic Plan Test Properties

To configure the properties of a test, you must first follow the steps described in *Creating Tests* or *Editing Tests*.

To configure the properties of a Silk Test Classic plan test:

1. On the **New Test** dialog box, select **Silk Test Classic Plan** from the **Type** list box and then click **Next**.

   The **Plan Properties** dialog box opens.
2. In the **Plan file** text box, type the fully qualified name of the test plan file to be executed.

   Click **Browse** to browse for the file.
3. In the **Silk Test Classic project file** text box, type the name of the Silk Test Classic project containing the file and environmental settings.

   Click **Browse** to browse for the project file.

4. In the **Option set** text box, type the fully qualified name of the option set file containing environmental settings.

   Click **Browse** to browse for the option set file.
5. In the **Data file for attributes and queries** text box, type the default path of the test plan initialization file.

   Click **Browse** to browse for the test plan initialization file.
6. In the **Test plan query name** text box, type the fully qualified name of the saved test plan query.
7. Click **Finish**.

Configuring TestPartner Test Properties

To configure the properties of a test, you must first follow the steps described in *Creating Tests* or *Editing Tests*.

To configure TestPartner test properties:

1. On the **New Test** dialog box, select **TestPartner Test** from the **Type** list box.
2. Click **Next**. The **Test Properties - Select Test Script** dialog box opens.
3. Click **Browse**.

   The **Choose File** dialog box opens. The assets available in this dialog box are based on the **Project Path** defined in the associated TestPartner source control profile.
4. Select a script from the list and click **OK**.

   Note: To add multiple TestPartner tests, see *Adding Multiple TestPartner Tests*.
5. In the **Playback Options** text box, type in the name of a predefined TestPartner playback option or leave the default value of `System Defaults`.
6. Click **Finish**.

Adding Multiple TestPartner Tests

To add multiple TestPartner tests, you must first follow the steps described in *Creating Tests*.

To add multiple TestPartner tests:

1. On the **New Test** dialog box, select **TestPartner Test** from the **Type** list box.
2. Click **Next**. The **Test Properties - Select Test Script** dialog box opens.
3. Click **Browse**.

   The **Choose File** dialog box opens. The assets available in this dialog box are based on the **Project Path** defined in the associated TestPartner source control profile.
4. In the **Playback Options** text box, type in the name of a predefined TestPartner playback option or leave the default value of `System Defaults`.

   Note: The import gives the defined playback option to all imported scripts. If you need to change the playback option for any scripts, edit the test after the import.
5. Click **Next**.

   The **Test Properties - Select Scripts** dialog box opens.
6. In the **TestPartner Scripts** text box, select the scripts to import by clicking `CTRL + Click`.
7. Click **Finish**.

Configuring .Net Explorer Test Properties

To configure the properties of a test, you must first follow the steps described in *Creating Tests* or *Editing Tests*.

To configure .NET Explorer test properties:

1. On the **New Test** dialog box, select **.NET Explorer Test** from the **Type** list box and then click **Next**.

   The **.NET Explorer Test Properties** dialog box opens.
2. Browse to and select the .NET Explorer script to apply to the test.

   The script is a `.nef` file.
3. Browse to and select the `NetExplorer.exe` executable that executes the selected script file.

   For example `C:\Program Files\MyCustomSPFolder\DotNET Explorer\NetExplorer.exe`.
4. In the **Test case** text box, type the name of the .NET Explorer script to execute.

   If this text box is left blank, all test cases within the script are executed.

   Note: The test cases InitTestCase and EndTestCase are always executed.
5. Click **Finish**.

Configuring JUnit Test Properties

To configure the properties of a test, you must first follow the steps described in *Creating Tests* or *Editing Tests*.

To configure JUnit test properties:

1. On the **New Test** dialog box, select **JUnit Test** from the **Type** list box and then click **Next**.

   The **JUnit Test Properties** dialog box opens.
2. In the **Test class** field, type the fully qualified name of the JUnit test class. If the field is left blank, all tests in the classpath will be executed.
3. *Optional:* In the **Test method** field, type the name of the appropriate test method.

   The method must be available in the test class. If the **Test method** field is left blank, all tests that are included in the suite will be executed.
4. *Optional:* Set the **Java home directory** to the installation path of the Java Runtime Environment (JRE).

   The path must be valid on the execution server on which the test runs.

   Note: JUnit tests can be executed in JRE 1.5 and newer. If you use an older JRE, messages containing `java.lang.UnsupportedClassVersionError` or `Unrecognized option: -javaagent` will display in the **Messages** tab.
5. Specify a valid Java **Classpath** to use on the execution server.

   We recommend to use a relative classpath. The relative classpath is then expanded to the full classpath on the execution server. By using a relative classpath, changes on the location of the source control profile do not require additional changes to the classpath.

   The relative classpath must point to the root node of the test container containing the JUnit test, for example `JUnit_tests`. The relative classpath on the execution server is then expanded to include the working folder of the source control profile, for example `C:\temp`, and the test file names, for example `JUnit4Test.jar`.

   You can also use a fully qualified classpath. The fully qualified classpath must point to the archive or folder in which the test classes reside. Further, `junit.jar` must be added to the classpath, with the appropriate JUnit version, as the following examples show:

   - `C:\MyApps\main.jar;C:\MyApps\utils.jar`
   - `${apps_home}\main.jar;${apps_home}\utils.jar`
6. *Optional:* In the **JVM options** field, you can specify the command-line options and environmental variables that can affect the performance characteristics of the JVM. You can specify multiple options, but you have to type them in the right order. For example, to use the client VM and set the maximum size of the heap to 512MB, type `-client -Xmx512m`.

7. *Optional:* In the **Coverage path** field, type the JAR libraries or the specific class files to monitor for code coverage information.

   We recommend using the relative coverage path from the test container root node, which is then expanded on the execution server. You can also use a fully qualified path. Use semicolons to separate multiple jar files, as the following examples show:

   - `C:\MyApps\main.jar;C:\MyApps\utils.jar`
   - `${apps_home}\main.jar;${apps_home}\utils.jar`

   Note: The coverage path setting is disregarded if the **Record external AUT Coverage** check box is checked.
8. Check the **Record external AUT Coverage** check box to get code coverage for the application under test that is defined for the execution plan in the **Code Analysis Settings** portion of **Silk Central** > **Execution Planning** > **Code Analysis** .

   If the check box is not checked, code coverage is recorded from the executing virtual machine. By default, the check box is not checked.
9. Click **Finish**.

Note: Parameters are passed to the Java process as system properties, for example `-Dhost_under_test=10.5.2.133`. Use the `System.getProperty()` method to access the system properties. For example, to access the previously passed `host_under_test`, use `System.getProperty("host_under_test");`.

Configuring Manual Test Properties

To configure the properties of a test, you must first follow the steps described in *Creating Tests* or *Editing Tests*.

To configure manual test properties:

1. On the **New Test** dialog box, select **Manual Test** from the **Type** list box.
2. In the **Planned time** text box, type the expected amount of time for this manual step to execute and then click **Next**.

   The **Add Manual Test Step** dialog box displays.

   Note: Manual test steps are automatically timed in seconds from the moment you begin execution. These values are available in **Detail** view, not **Step-by-Step** view.
3. Specify a name, an action description, and the expected results for the first step of the manual test.

   Note: Silk Central supports HTML formatting and cutting and pasting of HTML content for **Description** text boxes.
4. Click **OK**.
5. *Optional:* Click **New Step** to add additional steps to your manual test.

Configuring NUnit Test Properties

To configure the properties of a test, you must first follow the steps described in *Creating Tests* or *Editing Tests*.

Note: We recommend that you add the `.\bin` folder of your NUnit installation to the system path. Click **Start** > **Control Panel** > **System** > **Advanced** > **Environment Variables** to add a path like `C:\Program Files\NUnit 2.2\bin` to the system environment variable PATH.

To configure NUnit test properties:

1. On the **New Test** dialog box, select **NUnit Test** from the **Type** list box and then click **Next**.

   The **NUnit Properties** dialog box displays.

2. Click **Browse** to locate and select the NUnit assembly from which you want to pull a test.
3. Type the working directory in the **NUnit Directory** text box.

   This directory is the local path to the file `nunit-console.exe`, such as `C:\Program Files\NUnit 2.2\bin`.
4. In the **NUnit Options** text box, type one or more NUnit console command-line options to specify how NUnit tests are specified.

   For example, to define that the `Flex4TestApp` NUnit test, located in `SilkTest.Ntf.Test.Flex`, should be executed, set the fixture option as follows:

   ```
   /fixture:SilkTest.Flex.Flex4TestApp
   ```

   Note: When you add multiple options, you have to separate the options by writing one option in each line in the text box.
5. Click **Finish**.

Configuring Silk Performer Test Properties

To configure the properties of a test, you must first follow the steps described in *Creating Tests* or *Editing Tests*.

To configure Silk Performer test properties:

1. On the **New Test** dialog box, select **Silk Performer Test** from the **Type** list and click **Next**.

   The **Test Properties - Select Project** dialog box opens.
2. Click **Browse** to select a Silk Performer project that has been saved to your file system and click **Next**.
3. On the **Test Properties - Select Workload** dialog box, select one of the workload profiles that has been defined for the project from the **Workload** list.
4. Click **Finish** to create the test case.

   Silk Central is fully integrated with Silk Performer.

Configuring Silk Test Classic Test Properties

To configure the properties of a test, you must first follow the steps described in *Creating Tests* or *Editing Tests*.

To configure Silk Test Classic test properties:

1. On the **Test Properties - Select Test Script** dialog box, click **Browse** and select the test script file from either the defined Silk Test Classic project or the source control directory.

   Express the source control directory as a relative path to the root node defined in the test container.
2. Click **Next**.

   The **Test Properties - Select Testcase** dialog box opens.

   Note: If the Silk Test Classic script is a data-driven `.g.t` file, for example `SilkTestScript1.g.t`, then data sources are completely controlled within the script file and not through the data-driven properties of Silk Central. The **Data-driven** check box is checked by default when you use a data-driven script file. For more information about data-driven Silk Test Classic tests, refer to the Silk Test Classic documentation.
3. Select a test case from the available test cases in the defined script file or specify a custom test case.
4. *Optional:* Type additional execution arguments into the **Test data** text box.

   These arguments are processed by Silk Test Classic during the execution of the test.
5. Define whether the test should provide a TrueLog.

Note: When running your tests with the Open Agent, this setting must be turned on both in Silk Central and in Silk Test, otherwise no TrueLog will be provided. For more information, refer to the Silk Test Classic documentation.

6. If required, specify an option set file.
7. Click **Finish** to create the Silk Test Classic test.

Note: If you possess Silk Test Classic test cases that require more than one hour to complete, adjust the time-out settings for Silk Central. Otherwise, Silk Central assumes an error has occurred and terminates the execution. For details about time-out settings, see the *Administration* topics in this Help.

8. To import multiple Silk Test Classic testcases at the same time, select **Silk Test Classic Multi-testcase import** from the **Type** list box in the **New Test** dialog box and click **Next**. Follow the steps described above to complete the task.

Configuring Silk Test Workbench Test Properties

To configure the properties of a test, you must first follow the steps described in *Creating Tests* or *Editing Tests*.

To configure Silk Test Workbench test properties:

1. On the **Test Properties - Select Scripts** dialog box, select one or more scripts from the **Silk Test Workbench Test** list box.
2. In the **Playback Options** text box, type in the name of a predefined Silk Test Workbench playback option or leave the default value of `System Defaults`.

Note: A playback option must be set for a Silk Test Workbench test. The delete option on a Silk Test Workbench test will reset the playback option to the default value of `System Defaults`.

3. Click **Finish**.

Configuring Windows Scripting Test Properties

To configure the properties of a test, you must first follow the steps described in *Creating Tests* or *Editing Tests*.

To configure Windows scripting test properties:

1. On the **New Test** dialog box, select **Windows Scripting Test** from the **Type** list box and then click **Next**.

   The **Windows Scripting Properties** dialog box opens.
2. Click **Browse** and select a Windows scripting test script.
3. Specify the location of any required additional parameters in the **Switches** text box.

Note: You may add other switches to be passed to the script. For more details on the switches that can be used, see *Windows Script Host Tests* and refer to the MS Scripting Host documentation.

4. Click **Finish**.

Configuring Process Executor Test Properties

To configure the properties of a test, you must first follow the steps described in *Creating Tests* or *Editing Tests*.

To configure process executor test properties:

1. On the **New Test** dialog box, select **ProcessExecutor Test** from the **Type** list box and then click **Next**. The **ProcessExecutor Test Properties** dialog box opens.

2. In the **Executable Name** text box, type the fully qualified name of the executable.
3. In the **Argument List** text box, type all arguments of the process executor test method.

   Note: Multiple arguments must be on separate lines in the text box.

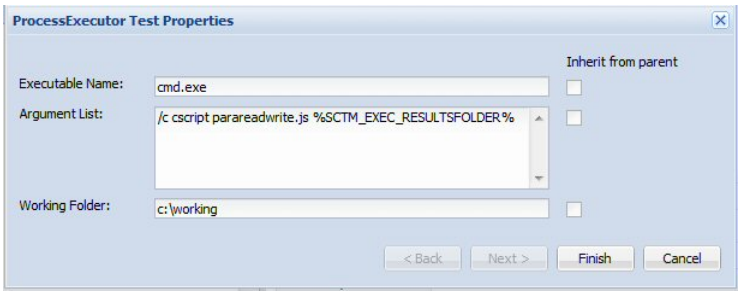
4. Set the **Working Folder**. This is the folder where the executable is executed.

During execution of the executable the following two environment variables can be used:

Environment Variable	Description
SCTM_EXEC_RESULTSFOLDER	All files in this folder are saved as result files in Silk Central. If an `output.xml` file is created during execution in this directory, it is processed by Silk Central.
SCTM_EXEC_SOURCESFOLDER	This is the folder where all source files used during the execution are located.

Example

The following example contains a ProcessExecutor test type that runs the Windows Script Host from the command line with the `/c` switch and two parameters:



- `/c` - command that specifies that the command line should terminate after execution.
- `cscript` - Windows Script Host.
- `parareadwrite.js` - the jscript file named `parareadwrite.js`
- `%SCTM_EXEC_RESULTSFOLDER%` - the Silk Central variable that contains the location of the `Result` folder on the execution server machine. Files stored in this location are automatically uploaded to Silk Central and available in the **Files** tab of the **Test Run**. In this example, the `parareadwrite.js` script produces an `output.xml` file that is written to the `Result` folder and uploaded back to Silk Central.

Configuring MSTest Properties

To configure the properties of a test, you must first follow the steps described in *Creating Tests* or *Editing Tests*.

Note: The MSTest plugin supports the test type unit tests only. Results of other test types are ignored.

To configure MSTest properties:

1. On the **New Test** dialog box, select **MSTest Test** from the **Type** list.
2. Click **Next**. The **MSTest Test Properties** dialog box appears.
3. You can run a test container, a test list, a test class, or a single test method:
   - To run a test container, click **Browse** next to the **Test file** field and select a `.dll` file. You can constrain the run by typing in just a **Test class** or both a **Test class** and a **Test method**.

- To run a test list, click **Browse** next to the **Test file** field and select a `.vsmdi` file (Visual Studio Test Meta Data). Type a name in the **Test list name** field. You can constrain the run by typing in both a **Test class** and a **Test method**.

4. Click **Finish**.

Note: To run MSTest on an execution server, a Visual Studio distribution or the Visual Studio Test Agent have to be installed. Add the folder that contains `MSTest.exe` to your path variable and restart the execution server. The default path is: `C:\Program Files (x86)\Microsoft Visual Studio <version>\Common7\IDE`. Currently MSTest distributed with Microsoft Visual Studio/ Visual Studio Test Agent 2010, 2012, 2013 is supported.

Working With Tests in Grid View

The **Grid View** in the **Tests** area complements the **Document View** and **Details View** by facilitating the filtering, sorting, and grouping of large numbers of tests. **Grid View** eases identifying match points between tests and finding specific test information. Standard Windows keyboard shortcuts can be used, making it easy to select and manipulate specific sets of tests within **Grid View**. You can execute trial runs of tests and access tests from **Grid View**. You can also create execution plans through multi-selecting tests within **Grid View**.

Grid View offers a number of view-customization features that can help you better manage large numbers of tests. You can display or hide columns, adjust the width of columns, and move columns around using drag-and-drop. To enhance performance when you have numerous tests, page views are broken into views of 50 tests each. You can advance through pages using the **First**, **Last**, **Next**, and **Previous**. Or you can enter a page number into the **Page** text box and press **Enter** to access the specified page. Sorting, grouping, and filtering functions are available through context-menu commands to help you better organize your tests, group tests, and identify matching points between tests. All of your view-customization preferences are saved along with your project and will be available to you the next time you visit **Grid View**.

Accessing Tests from Grid View

You can access a test in **Tests** view directly from the **Grid View**.

To access a test's **Properties** page from **Grid View**:

1. In the menu, click **Tests** > **Grid View** .
2. Click on the **Name** of the test that you want to access.

   Alternatively, right click the row of the test and select **Go to test**.

Creating an Execution Plan in Grid View

To create an execution plan in **Grid View**:

1. In the menu, click **Tests** > **Grid View** .
2. Select the tests you want to assign to your execution plan, by using the multi-select feature of the **Grid View**.
3. Right-click the tests and choose **Create Execution Plan**. The **New Execution Plan** dialog box displays.
4. Enter the specifications of your new execution plan.

Note: All selected tests must be in the same container. If not, the execution plan is not created and an error message displays. The test container is preselected in the **New Execution Plan** dialog box and can not be altered.

Modifying Properties and Attributes for Multiple Tests

To modify property or attribute values for multiple tests:

1. In the menu, click **Tests** > **Grid View** .
2. Select the tests for which you want to edit the properties or attributes.
3. Right click and select **Multi-Edit**. The **Multi-Edit** dialog box opens. This dialog lets you set the value of the selected property or attribute to the same value for all selected tests.

   Tip: Right-clicking on a cell of a specific property or attribute column pre-selects this property or attribute in the **Multi-Edit** dialog box.
4. Select **Properties** or **Attributes** from the **Category** list.
5. Select the **Name** of the property or attribute to modify.
6. Select the **Value** of the property or attribute that will apply to all selected tests.
7. Click **OK**. The selected property or attribute value is applied to all selected tests.

Displaying and Hiding Columns in Grid View

To display and hide columns in **Grid View**:

1. In the menu, click **Tests** > **Grid View** .
2. Right-click a column header.
3. Expand the **Columns** submenus to view all the columns that are available in the project.
4. Check the check boxes of all the columns you want to have displayed in **Grid View**. Your column-display preferences will be saved and displayed each time you open the active project.

Grouping Tests in Grid View

Beyond simply sorting by column, you can chunk tests into groups to facilitate viewing. Groups are based on commonly-shared values within the column that the grouping is based on.

To group tests in **Grid View**:

1. In the menu, click **Tests** > **Grid View** .
2. Right-click the header of the column that the sort is to be based on and select **Group by This Field**. The tests are organized into groups based on commonly-shared values within the column you have selected.

Removing Grouping of Tests in Grid View

To remove the grouping of tests in **Grid View**:

1. In the menu, click **Tests** > **Grid View** .
2. Right-click any column.
3. Uncheck the **Show in Groups** check box.

Sorting Tests in Grid View

To sort tests in **Grid View**:

1. In the menu, click **Tests** > **Grid View** .
2. Right-click the header of the column you want the tests to be sorted by.
3. Select **Sort Ascending** to have the tests sorted in ascending order or select **Sort Descending** to have the tests sorted in descending order. Your sort preferences are saved and displayed each time you open the active project.

Reordering Columns in Grid View

To reorder columns in **Grid View**:

1. In the menu, click **Tests** > **Grid View** .
2. Select the column header of the column you want to move.
3. Drag the column to the desired position and release it. Your column-order preferences are saved and displayed each time you open the active project.

Resizing Columns in Grid View

To adjust the width of a column in **Grid View**:

1. In the menu, click **Tests** > **Grid View** .
2. Select the vertical column-header divider of the column you want to adjust.
3. Drag the column boundary to the desired position and release it. Your column-width preferences are saved and displayed each time you open the active project.

Filtering Tests in Grid View

You can filter the test list based on column values. You can specify the following:

- Filter strings to be applied to text-based data fields.
- Calendar filters for date-based fields, using **Before**, **After**, or **On** operators.
- Numerical operators for number-based fields. **>**, **<**, and **=**.

*Filtering Text-Based Values in **Grid View***

To filter text-based values in **Grid View**:

1. In the menu, click **Tests** > **Grid View** .
2. Right-click the header of the text-based column that the filter is to be based on.
3. Expand the **Filters** submenu on the context menu to display the **Filters** text box.
4. Type the text string into the text box.
5. Press **Enter**. All tests that match the filter criteria, for example, in the case of test names, all test names that include the specified string, are then dynamically displayed in the filtered list.

*Filtering Date-Based Values in **Grid View***

To filter date-based values in **Grid View**:

1. In the menu, click **Tests** > **Grid View** .
2. Right-click the header of the date-based column that the filter is to be based on.
3. Hold your cursor over **Filter** on the context menu to display the **Before**, **After**, and **On** submenu.
4. Hold your cursor over **After** to define a date before which (and including) all tests should be excluded. Hold your cursor over **Before** to define a date after which (and including) all tests should be excluded. Hold your cursor over **On** to exclude all tests except those that have the specified date. The calendar tool displays.
5. Select a date using the calendar tool or click **Today** to specify today's date.

   Tip: You must explicitly click a date on the calendar tool or click **Enter** to activate date-based filtering changes.

   All tests that match the filter criteria are dynamically displayed in the filtered list.

*Filtering Number-Based Values in **Grid View***

To filter number-based values in **Grid View**:

1. In the menu, click **Tests** > **Grid View** .

2. Right-click the header of the number-based column that the filter is to be based on.
3. Expand the **Filters** submenu on the context menu to display the **>**, **<**, and **=** operators.
4. Enter a number in the **>** text box to define a number less than which (and including) all tests should be excluded. Enter a number in the **<** text box to define a number greater than which (and including) all tests should be excluded. Enter a number in the **=** text box to exclude all tests except those that have the specified number.

   Note: Number values are rounded to two decimal places.

5. Press **Enter**. All tests that match the filter criteria are dynamically displayed in the filtered list.

*Filtering Boolean Values in **Grid View***

To filter boolean values in **Grid View**:

1. In the menu, click **Tests** > **Grid View** .
2. Right-click the header of the boolean-based column that the filter is to be based on.
3. Expand the **Filters** submenu on the context menu to display the available values.
4. Click one of the **Yes** or **No** option buttons. All tests that match the filter criteria are dynamically displayed in the filtered list.

*Filtering Values Using a Predefined List in **Grid View***

To filter values using a predefined list in **Grid View**:

1. In the menu, click **Tests** > **Grid View** .
2. Right-click the header of the column that has a predefined filter value, for example `NodeType`, that the filter is to be based on.
3. Expand the **Filters** submenu on the context menu to display the available values.
4. Check the check boxes of the filter values that you are interested in. All tests having one of the selected criteria will be displayed.

*Removing Specific **Grid View** Filters*

Note: You can identify filtered columns by their titles, which are displayed in bold, italic text. Hiding a column removes all filters that have been applied to the column.

To remove a specific **Grid View** filter:

1. In the menu, click **Tests** > **Grid View** .
2. Right-click the header of the column that has the filter you want to remove.
3. Uncheck the **Filters** check box.

*Removing All **Grid View** Filters*

Note: You can identify filtered columns by their titles, which are displayed in bold, italic text. Hiding a column removes all filters that have been applied to the column.

To remove all **Grid View** filters:

1. In the menu, click **Tests** > **Grid View** .
2. Right-click any column header and select **Reset Filters**.

Restoring Default Grid View Settings

Restoring default **Grid View** settings resets all user-defined settings for the current project. The user-defined settings are the following:

- Column order
- Column width
- Shown and hidden columns
- Applied filters
- Sorting
- Grouping

To restore the default **Grid View** settings:

1. In the menu, click **Tests** > **Grid View** .
2. Right-click any column header and select **Reset View**.

Assigning Existing Issues to Tests in Grid View

To assign existing issues to one or more tests:

1. In the menu, click **Tests** > **Grid View** .
2. Right-click on a test. You can select multiple tests with **Ctrl+Click** or **Shift+Click**.
3. Click **Assign Existing Issue**, select a **Profile** and enter an **Issue ID**.

Working with Manual Tests

Steps Page

Tests > **Details View** > **<Manual Test>** > **Steps**

Tests > **Libraries of Shared Steps** > **<Shared Steps Object>** > **Steps**

The **Steps** page lists all manual test steps that are included in the selected test or shared steps object. The page supports standard Windows Explorer style multi-select functionality.

To create a new shared steps object, select the steps you want to share and click .

The page includes the following toolbar items:

Toolbar Item	Description
	Add a new test step to the end of the list.
	Insert a new test step before the selected step.
	Add a call to a shared steps object to the end of the list.
	Add a call to shared steps from a library before the selected step.
	Delete the selected test steps from the list.
	Cut the selected test step from the list and move it to the clipboard.
	Copy the selected test steps to the clipboard.
	Paste a copy of the test steps held on the clipboard to the row above the selected in the list.
	Move the selected test step one position up in the list.
	Moves the selected test step one position down in the list.

Toolbar Item	Description
	Opens the **Attachments** dialog box, where you can perform the following actions: **Upload File** Upload and attach a file to the selected test step. **Attach Link** Attach a link to the selected test step. **Delete** Delete the file or link.
	When steps of the test or shared steps object call a shared steps object in a library, click here to view the original steps. The resolved steps are marked with an arrow, and you can access them by clicking on their name. You cannot edit steps while this view is enabled.
	View steps called from a shared steps object in a library as a single step. Enable this view to edit test steps.
	Create a shared steps object out of the selected steps.
	Detach calls from other shared steps objects. Copies all steps in the calls you have selected in the grid into the manual test or shared steps object.

The **Steps** page supports the following keyboard functions (shortcuts) for test elements:

Key	Normal	SHIFT	CTRL
-	Move up		
+	Move down		
A			Select All
X			Cut
C			Copy
V			Paste
Ins	Insert		
Del	Delete		

The steps are displayed in a grid with the following columns:

Column	Description
Order	Number of the step in the execution sequence.
Name	Name of the test step.
Action Description	Action you must perform to execute the test step.
Expected Results	Expected result of the test step.
Attachments	Amount of links or files that are attached to the test step.

The **Edit Step** view shows the details of the selected test step and allows you to edit the name, action description, expected results, and step properties of the test step.

The following buttons are available in the **Edit Step** view:

Button	Description
OK and New Step	Click when you are finished with editing the current step and you wish to save your changes and add a new step after the current.
OK	Click when you are finished with editing the current step and you wish to save your changes.
Reset	Click to revert your changes.

Editing Manual Test Steps

Edit the manual test steps of a test or a shared steps object in the **Steps** page.

To edit a manual test step:

1. For a shared steps object, click **Tests** > **Libraries of Shared Steps** in the menu. For a manual test, click **Tests** > **Details View** in the menu.
2. Select the node whose steps you want to edit in the **Tests** or **Libraries** tree.
3. Click the **Steps** tab.
4. Click on the test step that you want to edit. The details of the test step are shown in the **Edit Step** view.
5. Edit the name, action description, expected results, and step properties of the test step in the corresponding text boxes.

   Note: You can insert values from data sources into manual test steps in the form of parameters.

   Note: Silk Central supports HTML formatting and cutting and pasting of HTML content for **Description** text boxes.
6. Perform one of the following actions to finish editing the test step:
   - Click **OK and New Step** to save your changes and add a new step after the current one.
   - Click **OK** to save your changes.
   - Click **Cancel** to revert your changes.

Using External Tools to Create Manual Tests

You can use the open interface of Silk Central to create manual tests outside of Silk Central's user interface. You can create your own solutions and automatically create manual tests by using Silk Central's Web Service calls.

The following calls in the `tmplanning` Web Service assist you in creating manual tests:

- getTestContainers
- addManualTest
- getCustomStepPropertyNames
- getChildNodes
- getNodeDetails
- addNode
- updateNode
- startExecution

For a detailed explanation of these Web Service calls, see *Available Web Services*.

Converting Manual Tests to Automated Tests

You can convert a manual test to one of the supported automated test types, Silk Performer, Silk Test Classic, NUnit, and JUnit, and all installed plug-ins. The process carries manual test parameters over to the automated test, and adds automated parameters to the new automated test.

The manual test parameters that are carried over to automated tests are:

- Name
- Description
- Assigned requirements
- Assigned execution plans
- Assigned issues
- Attachments
- Test steps

Converting Manual Tests to Automated Tests

To convert a manual test to an automated test:

1. In the menu, click **Tests** > **Details View** .
2. Right-click the manual test in the **Tests** tree and select **Automate with...**.
3. Select the automated test type from the list.
4. For information on filling out the dialog, see the appropriate topic in *Configuring Test Properties*.

Converting Automated Tests to Manual Tests

You can convert an automated test to a manual test. This is useful for example if you have an automated test that you want to convert to another test type, for instance from Silk Test Classic to Silk4J. In this case you would convert the Silk Test Classic test to a manual test, and then automate it with Silk4J.

Note: Limitations: Automated test to a manual test conversion only works for standard automated test, which excludes package nodes, data-driven nodes, and linked nodes.

1. In the menu, click **Tests** > **Details View** .
2. Right-click the test in the **Tests** tree and select **Convert to Manual Test**.
3. Confirm the message.

Caution: Test type-specific properties are discarded. If an automated test is currently running, test results are discarded after the test run completes.

Printing Manual Tests

To print manual tests:

1. In the menu, click **Tests** > **Grid View** .
2. Use **Ctrl + Click** or **Shift + Click** to select the manual tests that you want to print.
3. Right-click the selection and choose **Show Test Details**. The *Manual Test Document* dialog box opens.
4. Click **Print**.

Tip: To print a single manual test, you can also right-click the test in the **Tests** tree and select **Print**.

Silk Test Classic Tests

When you observe running Silk Test Classic executions on the **Activities** page, the currently running execution plan offers a hyperlink that opens a **Details View**. This view allows you to closely monitor the state of the currently running execution plan. For Silk Test Classic test executions, the center component of this view consists of two parts: The upper part shows general information about the test, script, test case,

and test data. The lower part shows all output messages generated by Silk Test Classic, along with their severity.

Silk Central's Silk Test Classic interface offers a reliable means of automating Silk Test Classic users. Each test case of a Silk Test Classic script executes within its own test execution and produces its own results.

In previous versions of Silk Central, Silk Test Classic invocation was implemented through a command-line interface. The new interface works using interprocess communication. You can specify whether or not Silk Central's Silk Test Classic interface should be used by configuring test-container settings.

For all Silk Test Classic test parameters that are not defined through Silk Test Classic test properties in the Silk Central GUI, the Silk Test Classic default settings are used, for example from `partner.ini`.

You can define the following Silk Test Classic test properties:

Test Property	Description
Test script	The test script, with file extension `.t` or `.g.t`, is defined relative to the test container's root node in the source control profile. This setting is required for all Silk Test Classic tests.
Testcase	You can select the test case from a list box or type it manually. If the test is not defined as data driven, the test case is required.
Test data	*Optional:* If several arguments are passed to Silk Test Classic, they have to be separated by a comma (,). If a `String` argument is passed to Silk Test Classic, the argument must be set in quotation marks (“). When test data is more complex, we recommend that you use parameters in the test data, for example`${ParameterName}`. Parameters are replaced automatically within test executions. **Attention:** This field has a maximum length of 2000 characters.
Data driven	When a Silk Test Classic test requires input data from an external datasource, this flag must be enabled. Default execution mode for data-driven tests is plan-based. When you use script-based execution mode for a data driven test, change the *DataDrivenScriptMode* setting in the Silk Test Classic element of `SccExecServerBootConf.xml`.
Option set	*Optional:* By default, Silk Central closes all open Silk Test Classic option set files. To specify an option set file, specify the file name relative to the test container's root node in the source control profile.

When the custom test case field is already populated, the Silk Test Classic test was automatically created, using the export functionality within Silk Test Classic. When you use the custom field to specify the test case, you can terminate the test case name with a parenthesis "()". Inside the parenthesis, you can specify test data, including parameters.

Note: Specifying data in the custom field will override the values of the *Test data* property.

Test Attributes

Attributes are administrator-created characteristics that can be applied to tests. You can filter the **Tests** area for the tests with a specific attribute and assign all such tests to execution plans. Examples include a platform attribute that can be applied to product components and a priority attribute that can be applied to tests.

Test Attributes Page

Tests > **Details View** > **<Test Element>** > **Attributes**

The **Attributes** page in **Details View** displays all project attributes that are assigned to the selected test. For each attribute, the **Attributes** page includes the following columns:

Column	Description
Actions	Actions you can perform on the attribute. **Delete** or **Edit**.
Attribute	Name of the attribute.
Value	The value of the attribute that is assigned to the test.
Type	Attribute type.
Inherited	Whether the attribute is inherited from a parent.

Note: Inheritance of attributes is similar to inheritance of properties and success conditions. Attributes that are assigned to a parent node are inherited throughout all sub-folders and child tests.

Assigning Attributes to Tests

To assign an attribute to a test:

1. In the menu, click **Tests** > **Details View** .
2. Select the test to which you want to assign an attribute.
3. Click the **Attributes** tab.
4. Click **Add Attribute**. The **Add Attributes** dialog box appears.
5. Click ✚ (**Add Attribute 'Importance'**) in the **Add** column of the attribute that you want to assign. Based on the attribute type you have selected, an **Edit Attribute** dialog box appears, where you can specify which of the available attribute values you want to assign to the test.
6. Select an attribute value and click **OK** to assign the attribute to the test.

Editing Test Attributes

To edit a test attribute:

1. In the menu, click **Tests** > **Details View** .
2. Select the test for which you want to edit an assigned attribute.
3. Click the **Attributes** tab.
4. Click the **Edit Attribute** button of the attribute you are editing. The **Edit Attribute** dialog box displays. The available options in the **Edit Attribute** dialog box vary depending on the attribute type that you have selected.
5. Select the required value and click **OK** to save your settings.

Deleting Attributes from Tests

To delete an attribute from a test:

1. In the menu, click **Tests** > **Details View** .
2. Select the test from which you want to delete an assigned attribute.
3. Click the **Attributes** tab.
4. Click the delete icon of the attribute you want to delete. The **Delete Attribute** confirmation dialog box displays.
5. Click **Yes** to delete the attribute.

Note: Inherited attributes cannot be deleted.

Test Parameters

Parameters are freely configurable input values that can be assigned to different test types and used in a variety of ways. They help to define tests by defining test data.

Silk Performer	These tests use pre-defined parameters that represent the project attributes that are defined in a selected Silk Performer test.
JUnit, Silk4J	Any JUnit test class can access a custom parameter of the underlying test as a Java system property; the launcher passes these parameters to the executing virtual machine using the `-D` VM argument. Within the test the values of the parameter can be accessed using `System.getProperty("myParam")`.
Silk4NET	For Silk4NET each parameter will be set as an environment variable. Within the test the value of the parameter can be accessed using `Environment.GetEnvironmentVariable("myParam")`.
Silk Test Classic	Parameters serve as symbols within test data properties. You can also use parameters to parameterize input data for manual test steps. To enable Silk Test Classic to use a parameter that has been set for a test in Silk Central, use the `GetArgs()` function. Parameters are only passed once for each individual session or test.
External Processes	For any test type where the execution takes place in an external process (WSH, Process Executor, NUnit, JUnit, MSTest, DotNetExplorer), each parameter will be set as an environment variable for the process. This is also the case if the parameter name matches the name of an operating system variable, so that the value of the system variable will be replaced by the parameter value, except when the parameter value is an empty string.
Silk Test Workbench	The parameter needs to be defined with the same name in the Silk Test Workbench test, to be set when being executed in Silk Central.
Configuration testing	You can override the test parameters in an execution plan. For additional information, see *Execution Plan Parameters*.
Custom test types	For details on custom test types, refer to the *Silk Central API Help*.

Test Parameters Page

Tests > **Details View** > **<Test Element>** > **Parameters**

In **Details View**, the **Parameters** page displays the test parameters that are assigned to the selected test. For each parameter, the page display the following columns:

Column	Description
Actions	The actions that you can perform on the parameter. **Delete** and **Edit**.
Parameter	Name of the assigned parameter.
Value	The selected parameter value for this test.
Type	• String • Number • Float • Boolean • Password • Character
Inherited	Indicates if the parameter has been inherited from a parent.

Note: Test parameters that are contained within a property of a test, for example test-data for Silk Test Classic tests, are listed at the top of the **Parameters** page. Unused parameters are appended to the bottom of the list and grayed out, analogous to a disabled state.

Note: When the **Parameters** page includes more elements than can be displayed at once without impacting response time, elements are displayed in increments. Page number links at the bottom of the tab allow you to browse through the elements included on the page one page at a time. To display all elements as a single list, select the `[All]` link.

Creating Custom Parameters

To create a custom parameter:

1. In the menu, click **Tests** > **Details View** .
2. Select the test node for which you want to create a new parameter.
3. Click the **Parameters** tab.
4. Click **Add Custom Parameter**. The **Set Custom Parameter** dialog box displays.
5. Provide a name for the parameter.
6. In the **Type** list box, select the parameter type.
   - String
   - Number
   - Float
   - Boolean
   - Password
   - Character
7. Define the parameter value that you want to assign to the selected test.

   Note: Values for parameters of type String must be set in quotation marks (“) if you want to use the parameter in Silk Test Classic executions.
8. Click **OK**.

   Note: Parameters are automatically assigned to all sub-folders and child tests of the nodes to which they’ve been assigned.

The parameter now displays in the **Parameters** page of the selected node.

Adding Predefined Parameters to Silk Performer Tests

To add a predefined parameter to a test:

1. In the menu, click **Tests** > **Details View** .
2. In the **Tests** tree, select the test node to which you want to add a predefined parameter.
3. Click the **Parameters** tab.
4. Click **Add Predefined Parameter**.

   Note: The **Add Predefined Parameter** button is only available for Silk Performer tests, when the **Project** property is already defined.

   The **Add Predefined Parameter** dialog box appears, which lists all of the project attributes that are available in the project file.
5. To add any of the listed parameters, click the corresponding add icon.
6. On the dialog box that appears, specify the actual value for the parameter.
7. Click **Save** to add the parameter to the active **Tests** tree node.

Editing Predefined Parameters

To edit a predefined parameter:

1. In the menu, click **Tests** > **Details View** .

2. Select the test node for which you are editing an existing parameter.
3. Click the **Parameters** tab.
4. In the parameter you want to edit, click **Edit**. The **Set Custom Parameter** dialog box displays.
5. Edit the parameter values as required.

   Note: Inherited parameters cannot be edited. Uncheck the **Inherit from parent** check box to enable editing of the parameter's **Value** setting. Parameter **Name** and **Type** settings cannot be edited.

Deleting Predefined Parameter Assignments

To delete a predefined parameter assignment:

1. In the menu, click **Tests** > **Details View** .
2. In the **Tests** tree, select the test node for which you are deleting the assignment of an existing parameter.
3. Click the **Parameters** tab.
4. Click **Delete** in the **Actions** column of the parameter that you want to delete.

   Note: Inherited parameters cannot be deleted. Uncheck the **Inherit from parent** check box on the **Set Parameter** dialog box to enable deletion of an inherited parameter.
5. Click **Yes** on the **Delete Parameter** dialog box to delete the parameter.

Parameters within Parameter Values

You can use parameter values that contain parameters. The evaluation result of such parameter values is shown in a bold font in the GUI. The following example shows how to use such a parameter:

```
parameterA := aaa
parameterB := bbb + ${parameterA}
```

Evaluated values:

```
parameterA = aaa
parameterB = bbb + aaa
```

Parameter Notations

The following parameter notations are supported:

For all tests:

```
${<parameter>}
```

All characters are allowed for parameter names, except $, {, }, and #.

Deprecated notation for manual tests:

```
#<parameter>#
```

For manual tests, the following characters are allowed for parameter names: 0-9, a-z, A-Z, and _.

Additional notation for Silk Test Classic tests:

```
$<parameter>
```

For Silk Test Classic tests, the following characters are allowed for parameter names: 0-9, a-z, A-Z, and _.

Parameter-Token Replacement Upon Execution

Any string input for a property of a test may contain placeholders in the following form: $ `{parametername}`. `parametername` must match the name of a parameter defined or inherited for the test. At execution time, the placeholder is replaced by the value entered for the parameter with the denoted

name. This makes recurring strings in properties more customizable and facilitates the editing of common definitions.

When Silk Central finds a parameter with the notation `${<parameter>}`, it first checks if the parameter is included in the defined parameters, and if not, it checks if the parameter is an environmental variable.

For example, if the value of a JUnit classpath property is `junit.jar;${MyWorkingDir}/myclasses` and the parameter `MyWorkingDir` has the value `C:/Temp/MyWorking`, the resultant effective property value is `junit.jar;C:/Temp/MyWorking/myclasses`.

Note: The value of a parameter may also contain other parameter placeholders, which allows nesting based on the same principle.

Test Parameters Page - Silk Test Workbench

Tests > **Details View** > **<Test Element>** > **Data Set**

When passing parameters from a Silk Central test to a Silk Test Workbench test, these parameters must be defined as input parameters in the Silk Test Workbench script and they must have the same name in Silk Central as in the script. The following data types should be used:

Silk Central	Silk Test Workbench
String	Text
Number	Number (Long)
Number	Number (Long Long)
Number	Enumeration
Float	Number (Double)
Boolean	Boolean (True/False)

Associating Requirements with Tests

This section explains how to assign requirements to tests.

Assigning Requirements to Tests

To manually assign requirements to tests:

1. In the menu, click **Tests** > **Details View** .
2. In the **Tests** tree, select the test to which you want to assign requirements.
3. Click the **Assigned Requirements** tab.

   Note: If you have created a requirements filter, you can select it from the filter list above the **Requirements** tree. To create a new requirements filter, click **Requirements** > **Details View** in the menu and click on the toolbar.

   All requirements that are available for assignment are displayed in the **Requirements** tree.
4. Click **Assign All Filtered** to assign all filtered requirements to the selected test, or click to the left of a requirement to assign a single requirement to the selected test. Assigning all filtered requirements is only enabled if a filter is selected and if you have either **Manage requirements** or **Manage tests and executions** permission.

   Note: Newly generated tests can automatically be assigned to the requirements from which they are generated by checking the **Assign newly generated tests to requirements** check box on the **Generate Tests from Requirements** dialog box. This is the default behavior.

Sorting Assigned Requirements

To sort the assigned requirements:

1. In the menu, click **Tests** > **Details View** .
2. In the **Tests** tree, select a test.
3. Click the **Assigned Requirements** tab.
4. Click the column header of the property by which you want to sort the requirements.

   A small upward or downward pointing arrow indicates both which column the sort is based and the direction of the sort, ascending or descending.
5. If required, click the column header again to reverse the direction of the sort.

Locating Assigned Requirements

To locate assigned requirements in the **Available Requirements** tree:

1. In the menu, click **Tests** > **Details View** .
2. In the **Tests** tree, select a test.
3. Click the **Assigned Requirements** tab.
4. In the **Actions** column of a requirement, click to find out in which node in the **Available Requirements** tree the requirement is stored in.

The corresponding parent-requirement node is expanded and the assigned requirement is highlighted.

Removing Requirement Assignments

To remove a requirement assignment:

1. In the menu, click **Tests** > **Details View** .
2. In the **Tests** tree, select a test that has at least one requirement assigned to it.
3. Click the **Assigned Requirements** tab.
4. In the **Actions** column of the assigned requirement, click .
5. Click **Yes** on the confirmation dialog box to confirm deletion of the assignment.

Note: To remove all requirement assignments from the selected test, click **Remove All**.

Test Assigned Requirements Page

Tests > **Details View** > **<Test Element>** > **Assigned Requirements**

The **Assigned Requirements** page lists the requirements that have been assigned to the selected test or project, and allows you to assign additional requirements. The **Available Requirements** tree lists all requirements that can be assigned.

Note: If you have created a requirements filter, you can select it from the filter list above the **Requirements** tree. To create a new requirements filter, click **Requirements** > **Details View** in the menu and click on the toolbar.

For each assigned requirement, the page displays the following columns:

Column	Description
Actions	Actions that you can perform on the selected requirement. **Remove Requirement**, **Locate**, and **View Description**.
Requirement	Name of the assigned requirement. Click to open the **Requirements** > **Properties** page.

Column	Description
Priority	Priority of the requirement.
Risk	Potential risk associated with the requirement.
Reviewed	Review status of the requirement.

Working with Test Attachments

This section describes how to work with attachments in the **Tests** area.

Attaching Files to Test Elements

To attach a file to a test element:

1. In the menu, click **Tests** > **Details View** .
2. In the **Tests** tree, select a container, folder, or test.
3. Click the **Attachments** tab.
4. Click **Upload File**. The **Upload File** dialog box appears.
5. Click **Browse** to select a file from your local file system.
6. *Optional:* Enter a **Description** for the attachment.
7. Click **OK** to upload the attachment to the server and associate it with the selected element.

Note: Attaching files to a test element may not work in Mozilla Firefox. Firefox requires usage of three slashes, for example `file:///`, for a file link, while other browsers require only two, for example `file://`. Additionally, Firefox includes a security feature blocking links from remote files to local files and directories. For more information, see *http://kb.mozillazine.org/Firefox_:_Issues_:_Links_to_Local_Pages_Don't_Work*.

Attaching Links to Test Elements

To attach a link to a test element:

1. In the menu, click **Tests** > **Details View** .
2. In the **Tests** tree, select a container, folder, or test.
3. Click the **Attachments** tab.
4. Click **Attach Link**. The **Attach Link** dialog box appears.
5. Type the URL in the **Link** field.
6. *Optional:* Type a **Description** for the attached link.
7. Click **OK** to associate the link with the selected element.

Viewing Test Attachments

For a selected test element, the **Attachments** page lists the attached files and links. The attachments are by default displayed in the order in which they are uploaded, but you can sort the attachments by columns. To display the attachments that are associated with child elements of the selected element, check the **Include Child Attachments** check box.

To view a test attachment:

1. In the menu, click **Tests** > **Details View** .
2. In the **Tests** tree, select the element for which you want to view an attachment.
3. Click the **Attachments** tab.
4. Click on the name of the attachment.

The name of each listed attachment serves as a link. File-attachment links open a **Save As** dialog box, enabling you to download the attachment to your local file system. Link-attachments link directly to the link destinations in a new browser window.

Deleting Attachments from Test Elements

To delete an attachment from a test element:

1. In the menu, click **Tests** > **Details View** .
2. In the **Tests** tree, select the element from which you want to delete an attachment.
3. Click the **Attachments** tab.
4. In the **Actions** column of the attachment you want to delete, click ✕.
5. Click **Yes** on the confirmation dialog box to delete the attachment from the project.

Note: Only one attachment at a time can be deleted.

Test Attachments Page

Tests > **Details View** > **<Test Element>** > **Attachments**

The **Attachments** page lists all files and links that have been uploaded as attachments to the selected test containers, folders, and tests. Check the **Include Child Attachments** check box to additionally display all attachments of child tests, folders, and test containers of the selected node. For each listed attachment, the page displays the following columns:

Column	Description
Actions	Actions that can be taken on the attachment. **Delete**.
Name	Name of the attachment.
Size	Size of the attached file.
Description	Description that has been defined for the attachment.
Created On	When the attachment or link was uploaded.
Created By	User who uploaded the attachment.

Assigned Execution Plans

Viewing Assigned Executions

To view the executions that are assigned to a test:

1. In the menu, click **Tests** > **Details View** .
2. Select the test for which you want to view the assigned executions.
3. Click the **Properties** tab. The complete list of executions that are assigned to the selected test is displayed in the **Assigned Executions** grid.

Test Runs Page

Tests > **Details View** > **<Test>** > **Runs**

The **Runs** page is available on test nodes in **Details View** and offers a listing of test execution results for the selected test.

The data grid representation of the **Runs** page facilitates the filtering, sorting, and grouping of large numbers of test runs.

For each run, the page displays the following columns:

Column	Description	
Actions	Actions that you can perform on the test run.	
	New Issue	Click to open the **New Issue** dialog box and create a new issue for the test.
	Assign Existing Issue	Assign an issue from an externally-configured issue-tracking system to the test.
Status	Status of the execution. For tests that are part of a running execution plan, the status is updated in response to the current status of the test run. If the current run is aborted, the status is reset to the status before the run.	
Status Reason	The reason why a specific test run has the status **Passed**, **Failed** or **Not Executed**.	
Run ID	The ID of the test run. Click to open the **Test Run Results** dialog box. If the test is running, click to view details of the execution.	
Run Type	The **Run Type** column shows the test type during each run. The test type might change between two runs, for example when you convert the test from manual to automated.	
Start Time	Time the run started. If the test is a manual test and currently running, Silk Central adds *(Running)* to the date and time.	
Duration	Duration of the test run in *h/mm/ss*.	
Execution Plan	The name of the assigned execution plan, or `Unassigned Tests` if the execution was a try-run or results were uploaded. Click to open the execution plan.	
Executed By	The execution server from which the test was run.	
Issues Found	Displays the amount of issues that are assigned to the test run. When no issues are assigned to the test run, the column is empty. Click on the link to access the issue in the **Issues** page of **Tests** > **Details View**.	
Errors	Number of errors that were generated during the run.	
Warnings	Number of warnings that were generated during the run.	
Version	Version that the test was run against.	
Build	Build number that the test was run against.	
Execution Plan Parent	The configuration suite, folder, or testing cycle in the context of which the execution plan is executed. Click to access the suite or folder in the **Execution Plans** tree. If the execution plan is not included in a configuration suite or folder, nothing is displayed.	
Run Comment	For Silk Performer test runs, Silk Performer uses this column to add information to the test run when uploading results. For all other test types, you can use this column to add information to the run.	

To compare two or more test runs, use **Ctrl** or **Shift** to select the two runs. Right click on your selection and click **Compare Test Results** or **Reports** > **Test Run Comparison** .

Test Issues Page

Tests > **Details View** > **<Test Element>** > **Issues**

The **Issues** page enables you to enter and track issues related to the selected test, container, or folder.

New Issue	Click to assign a new issue to the selected test. This button is only displayed if the currently selected object is a test.

Assign Existing Issue	Click to assign an issue from an external issue tracking system to the selected test. This button is only displayed if the currently selected object is a test.
Update Issue States	Click to update issues states.

For each issue, the page displays the following columns:

Column	Description
Actions	Actions that can be performed on the issue. Click to delete the issue. External issues will not be deleted.
Issue ID	ID that has been automatically assigned to the issue. Click to edit the issue.
Assigned Test	Test that has been assigned to the issue. This column is only displayed if the currently selected object is a container or a folder.
Synopsis	Synopsis of the issue.
Status	Status of the issue.
External ID	Indicates if the issue is tracked by an external issue tracking system. Click an external issue number to link directly to the external issue tracking system.
Priority	The priority of the issue as defined in the external issue tracking system. The following issue tracking systems support this feature: Atlassian JIRA, Bugzilla, Silk Central Issue Manager, and StarTeam.
Test Run	The ID of the test run that the issue is assigned to. Click on the ID to access the **Details** page of the **Test Run Results** dialog box in the **Executions** area.
Created On	When the issue was created.
Created By	User who created the issue.
Profile	Name of the issue tracking profile, as defined in **Silk Central** > **Settings** > **Issue Tracking** .

Data-Driven Tests

Data-driven tests are tests that are derived from values in an existing data source, such as a spreadsheet or a database. Before you can work with data-driven tests, you need to configure a data source.

Creating Data-Driven Tests

To create a data-driven test:

1. In the menu, click **Tests** > **Details View** .
2. Create a new test.
   For more information, see *Creating Tests*.
3. Click the **Properties** tab of the newly created test.
4. Click (**Edit**) next to **Data-driven Properties**. The **Data-driven Properties** dialog box appears.
5. Select a preconfigured data source from the **Data Source** list.

Note: Your data source may contain up to 100 rows. If it contains more than 100 rows, you need to enter a query on the **Data-driven Properties** dialog box that returns 100 rows at most. This prevents generating more than 100 tests out of one data source.

6. Click **Next** to continue.
7. Select a data set from the **Data Set** list.

   In the case of Excel data sources, this is a worksheet name. In the case of database data sources, this is a table name.
8. Check the **Each data row is a single test** check box to have each row in your data set considered to be a separate test, or do not check this check box to create a single test for all data rows of your data set.
9. *Optional:* Enter a SQL query in the **Filter query** field to filter your data set based on an SQL-syntax query.

   Note: Only simple `WHERE` clause queries are supported.
10. Check the **Enable data-driven properties** check box to enable data-driven functionality.
11. Click **Finish** to save your settings.

Note: Data-driven property settings are visible in the lower portion of each test's **Properties** page.

Note: To use the data-driven test functionality of Silk Central with Silk Performer scripts, data sources with column names matching the corresponding Silk Performer project attributes must be used in conjunction with `AttributeGet` methods.

Adding a Data Source Value to a Manual Test Step

To add a data source value to a manual test step:

1. In the menu, click **Tests** > **Details View** .
2. Create a new data-driven test.

   Select `Manual` as the test type and configure test steps.

   Note: To view the values included in your data source, click the **Data Set** tab of the test.
3. Click the **Steps** tab.
4. Select the test step that should reference the data source value.
5. In the **Action description** text box, enter a parameter that references the relevant column in your data source, using the syntax `${<column name>}`.

   For example, if you want a test step to retrieve password parameters from a spreadsheet that has a column called *Password*, you would write the parameter as `${Password}`. When you execute the manual test step, the parameter is replaced by an actual value in the corresponding data-driven data source.

Downloading CSV Data From a Data Source

To download CSV data from a data source:

1. In the menu, click **Tests** > **Details View** .
2. Select a test that relies on the data source from which you want to download data.
3. Click the **Properties** tab.
4. In the **Actions** column of either the data source or the data set, depending on which entity contains the data you want to download, click **Download**.
5. Specify the location on your local system to where the data is to be downloaded.
6. Click **OK** to download the data in CSV format.

Editing Data-Driven Properties

To edit data-driven properties:

1. In the menu, click **Tests** > **Details View** .
2. Select the test that has the property you want to edit.
3. Click the **Properties** tab.
4. In the **Actions** column of the property you are editing, click .
5. Edit the property as required.
6. Click **OK** to save your changes.

Removing Data-Driven Properties

Remove all data-driven properties when the data-driven properties are no longer relevant, and when you want to delete a data source.

1. In the menu, click **Tests** > **Details View** .
2. In the **Tests** tree, select the node from which you want to remove the data-driven properties.
3. Click the **Properties** tab.
4. In the **Actions** column of the **Data-driven Properties** section, click . All data-driven properties are removed from the node.

Note: The data-driven properties are also removed from all sub-nodes that inherit the properties of the node.

Single and Multiple Data-Driven Test Instances

When planning data-driven tests, you should first be aware of the following two different data-driven test types that are available in Silk Central:

Single data-driven test instance	A single test result is generated for all data rows of your data source. This means that the test is only successful if the execution with every single data row is successful. If the execution with one data row fails, the whole test is marked as failed.
Multiple data-driven test instance	Each data row of your data source is represented by a test of its own. This means that each data row produces a failed or passed test result. For example, if your data source is a spreadsheet with four rows, you will have the original test you created as a parent test in addition to four new child tests, one for each of the data rows.

Note: Your data source may contain up to 100 rows. If it contains more than 100 rows, you need to enter a query on the **Data-driven Properties** dialog box that returns 100 rows at most. This inhibits to generate more than 100 tests out of one data source.

Note: The parent test created in this process does not have parameters associated with it, since it only represents a structuring instance for its child tests and no longer functions as an actual test. All values found in the data source will be listed on the parent test's **Data Set** page.

Note: When assigning a parent test to a requirement, links to requirements are only inherited when using single data-driven test instances.

Note: You can not assign the parent test of a multiple data-driven test instance to a setup or cleanup test execution, as such a parent node is treated as a folder. You can assign one of its child nodes though, and you can also assign a single data-driven test instance to a setup or cleanup test execution.

Worksheet Handling

If your data source is a Microsoft Excel worksheet, you should follow these guidelines to ensure a successful and maintainable data-driven test setup:

- Make your column names self-describing. This will make the data source setup in Silk Central easier to maintain.
- If you use multiple worksheets, use consistent column names across the worksheets. This will make it easier for you to apply filters for selecting columns for your data source setup.
- Use certain columns as “key” columns. Key columns will allow you to maintain your data source file, while Silk Central is still able to identify specific data rows due to the value in the key column, despite changes in row orders. Values within a key column should be unique.

Data Import Considerations

When importing data rows from an external data source, Silk Central does not account for row sorting functionality used in the external data source. Due to this, the order of data rows in Silk Central might differ from the row order in the external data source. Silk Central also ignores any format settings that have been applied in the external data source. For example, if you formatted date cells in an Excel worksheet to display the date in a certain way, Silk Central will ignore this setting and import any date values in the base format `"YYYY.MM.DD HH:MM:SS.M"`.

Note: Your data source may contain up to 100 rows. If it contains more than 100 rows, you need to enter a query on the **Data-driven Properties** dialog box that returns 100 rows at most. This inhibits to generate more than 100 tests out of one data source.

Test Data Set Page

Tests > **Details View** > **<Test>** > **Data Set**

The **Data Set** page lists all data that is defined for data-driven testing with the selected test.

The **Filter query** row at the top of the list displays the filter value that is defined for this data set. The values of the configured data set are displayed below this row.

For each data set, the page displays the following columns:

Column	Description
Actions	Actions that can be performed on the data set or filter. **Edit** and **Delete**.
Property	The name of the data set or filter.
Value	The value of the filter or data set for the selected test.
Inherited	Indicates whether or not the data set or filter was inherited from a parent test container or test.

Note: When the page includes more elements than can be displayed at once without impacting response time, elements are displayed in increments. Page number links at the bottom of the page allow you to browse through the elements included on the page one page at a time. To display all elements as a single list, click the **[All]** link.

Libraries

This section provides information regarding the usage of libraries in Silk Central.

Shared Step Libraries

Shared step libraries (libraries), are collections of test steps which are shared between tests in multiple projects. Sharing the steps reduces the amount of steps that a test engineer needs to maintain.

Libraries are displayed, organized, and maintained through a hierarchical tree structure, called the **Libraries** tree. The **Libraries** tree enables you to organize shared steps in any number of hierarchy levels.

You can edit or delete any node in the tree. Right click on a node in the tree to cut it, or to copy and paste it to another location. Use the **Visibility** page to define for which projects the selected library is visible. When you create a new call to a shared steps object from a project that has visibility on the library, the library is displayed in the **Call to Shared Steps** dialog box.

To view the properties of a node in the **Libraries** tree, select the node and click the **Properties** tab. To create, edit, or view step properties for a library node in the **Libraries** tree, select the node and click the **Step Properties** tab. To create, edit, or view the shared steps included in a shared steps object in the **Libraries** tree, select the shared steps object and click the **Steps** tab. The **Usages** page of each shared step object in the tree lists tests and other shared step objects that are calling the selected object, allowing you to estimate the impact of a change to the object.

When you create a baseline of a project, the baselined tests call the same shared steps objects as the original tests.

The root node of the **Libraries** tree is called **Shared Steps Libraries** and cannot be edited.

Note: Objects in the **Libraries** unit can be created, edited, and viewed by the Test Manager, Tester, and SuperUser roles. The Test Manager and SuperUser roles can additionally delete objects from the **Libraries** unit. Users with the roles Project Manager, Analyst, or Reporter can view objects in the **Libraries** unit.

Creating a Shared Step Library

1. In the menu, click **Tests** > **Libraries of Shared Steps**.
2. In the **Libraries** tree, select the root node, which is called **Shared Steps Libraries**.
3. In the toolbar, click to create a new library.

Note: You can also right click on the root node and click **New Library**.

Library Properties Page

Tests > **Libraries of Shared Steps** > **Properties**

The **Properties** page displays the following properties of the selected node in the **Libraries** tree:

Property	Description
Name	The name of the node.
ID	The identifier of the node.
Description	A description of the contents of the node.
Created On	Date and time this node was created.
Created By	Name of the user who created this node.
Changed On	The date and time this node was last changed.
Changed By	Name of the user who last changed this node.
Planned Time [hh:mm]	Estimated execution. Only for shared steps objects.

Step Properties Page

Tests > **Test Step Properties**

Tests > **Libraries of Shared Steps** > **<Library>** > **Step Properties**

The **Step Properties** page lists all properties that can be populated into manual test steps across the active project. To create a new step property, click **New Property**.

Step Property	Description
Actions	The actions that can be performed on the property are **Delete**, **Move Up**, and **Move Down**.
Name	Name of the step property.

Library Visibility Page

Tests > **Libraries of Shared Steps** > **Visibility**

On the **Visibility** page, you can make the selected library visible to all projects or limit its visibility to a selection of specific projects. To change the visibility of a the selected library to a project, click **Edit Visibility**.

When a baseline of a project that calls shared steps objects is created, the libraries that include the shared steps objects are by default visible to the new project baseline. For more information on project baselines, see the *Administration* topics in this Help.

For each project, the page shows the following properties:

Property	Description
Project	The name of the project.
ID	The identifier of the project.
Description	A description of the project.
Is Active	Whether the project is active or not.
Has Usages	Whether the project uses objects from the selected library or not.

Edit Visibility Dialog Box

The **Edit Visibility** dialog box displays the projects that can be assigned to the library by the current user.

The dialog box includes the following items:

Item	Description
All Projects	Click this option button to assign all projects to the library.
Selected Projects	Click this option button to assign selected projects from the list to the library.
Select All	Click to assign all listed projects to the library.
Deselect All	Click to unassign all listed projects from the library.

Note: Projects that are currently using the library are grayed out and you cannot unassign them from the library.

Shared Steps Objects

A shared steps object is a collection of manual test steps, included in a library, that can be used by multiple tests in multiple projects.

Calling Shared Steps

To reduce the effort for maintaining the same test steps in various tests and projects, you can add shared steps from a library as a single step to a test or shared steps object.

You can only add a call to all steps in a shared steps object, not to a selection of them. When a call to a shared steps object is added, all shared steps are displayed as a single step in the calling test or shared steps object and you can add additional steps before and after the called steps. The initial shared steps are only displayed during execution of the referencing test. The shared steps object cannot be deleted. To delete the shared steps object, you first have to remove all calls to it.

The name of the shared steps object, whose steps are called, is displayed as the name of the step in the **Steps** page. Click on the name to access the called shared steps object.

Adding a Call to Shared Steps

To add a call to a shared steps object:

1. In the menu, click **Tests** > **Details View** to add the shared steps to a test or click **Tests** > **Libraries of Shared Steps** to add the shared steps to another shared steps object.
2. In the corresponding tree, click on the node to which you want to add the shared steps.
3. Click the **Steps** tab.
4. To add the shared steps to the end of the steps list, click . To insert it above the selected step, click . The **Call to Shared Steps** dialog box opens.
5. Select the shared steps node, whose steps you want to add, from the tree.

   Note: For a test, the tree displays only the libraries that are visible to the active project. For more information, see the *Visibility Page*.
6. Click **Ok**.

Call to Shared Steps Dialog Box

The **Call to Shared Steps** dialog box enables you to browse shared steps objects in the **Libraries** tree. To open the dialog box, choose a manual test in the **Tests** tree or a shared steps object in the **Libraries** tree, click the **Steps** tab and click .

To search for existing libraries, folders, and shared steps objects in the **Libraries** tree, type the name you are searching for in the **Find** text box of the dialog box and press `Enter`. The search is case-insensitive and not limited to entire words. Libraries and folders returned by the search are displayed with their entire sub-tree.

Creating a Shared Steps Object

You can create a shared steps object in the **Steps** page of any manual test or shared steps object.

To create a shared steps object:

1. For a shared steps object, click **Tests** > **Libraries of Shared Steps** in the menu. For a manual test, click **Tests** > **Details View** in the menu.
2. Navigate to the **Steps** page of the manual test or shared steps object that includes the steps you want to share.

3. Select the steps with `CTRL + CLICK` or `SHIFT + CLICK`.
4. Click . The **Create Shared Steps** dialog box opens.
5. Enter a name for the new shared steps object in the **Name** field.
6. Choose the location where you want to place the new shared steps object in the **Libraries** tree.
7. Click **OK**. The shared steps object is created and the selected steps are replaced by a call to the shared steps object.

Detaching Shared Steps from Libraries

To make a manual test or a shared steps object independent of other shared steps objects, detach the steps from the libraries that contain the shared steps objects. All called steps are then copied into the manual test or shared steps object.

To detach the shared steps included in a manual test or a shared steps object:

1. For a shared steps object, click **Tests** > **Libraries of Shared Steps** in the menu. For a manual test, click **Tests** > **Details View** in the menu.
2. In the corresponding tree, click on the node in which you want to resolve the shared steps.
3. Click the **Steps** tab.
4. Select the calls that you want to resolve in the grid with `CTRL + CLICK` or `SHIFT + CLICK`.
5. Click and confirm the resolving in the message box.

Editing Manual Test Steps

Edit the manual test steps of a test or a shared steps object in the **Steps** page.

To edit a manual test step:

1. For a shared steps object, click **Tests** > **Libraries of Shared Steps** in the menu. For a manual test, click **Tests** > **Details View** in the menu.
2. Select the node whose steps you want to edit in the **Tests** or **Libraries** tree.
3. Click the **Steps** tab.
4. Click on the test step that you want to edit. The details of the test step are shown in the **Edit Step** view.
5. Edit the name, action description, expected results, and step properties of the test step in the corresponding text boxes.

   Note: You can insert values from data sources into manual test steps in the form of parameters.

   Note: Silk Central supports HTML formatting and cutting and pasting of HTML content for **Description** text boxes.
6. Perform one of the following actions to finish editing the test step:
   - Click **OK and New Step** to save your changes and add a new step after the current one.
   - Click **OK** to save your changes.
   - Click **Cancel** to revert your changes.

Steps Page

Tests > **Details View** > **<Manual Test>** > **Steps**

Tests > **Libraries of Shared Steps** > **<Shared Steps Object>** > **Steps**

The **Steps** page lists all manual test steps that are included in the selected test or shared steps object. The page supports standard Windows Explorer style multi-select functionality.

To create a new shared steps object, select the steps you want to share and click .

The page includes the following toolbar items:

Toolbar Item	Description
	Add a new test step to the end of the list.
	Insert a new test step before the selected step.
	Add a call to a shared steps object to the end of the list.
	Add a call to shared steps from a library before the selected step.
	Delete the selected test steps from the list.
	Cut the selected test step from the list and move it to the clipboard.
	Copy the selected test steps to the clipboard.
	Paste a copy of the test steps held on the clipboard to the row above the selected in the list.
	Move the selected test step one position up in the list.
	Moves the selected test step one position down in the list.
	Opens the **Attachments** dialog box, where you can perform the following actions: **Upload File** Upload and attach a file to the selected test step. **Attach Link** Attach a link to the selected test step. **Delete** Delete the file or link.
	When steps of the test or shared steps object call a shared steps object in a library, click here to view the original steps. The resolved steps are marked with an arrow, and you can access them by clicking on their name. You cannot edit steps while this view is enabled.
	View steps called from a shared steps object in a library as a single step. Enable this view to edit test steps.
	Create a shared steps object out of the selected steps.
	Detach calls from other shared steps objects. Copies all steps in the calls you have selected in the grid into the manual test or shared steps object.

The **Steps** page supports the following keyboard functions (shortcuts) for test elements:

Key	Normal	SHIFT	CTRL
-	Move up		
+	Move down		
A			Select All
X			Cut

Key	Normal	SHIFT	CTRL
C			Copy
V			Paste
Ins	Insert		
Del	Delete		

The steps are displayed in a grid with the following columns:

Column	Description
Order	Number of the step in the execution sequence.
Name	Name of the test step.
Action Description	Action you must perform to execute the test step.
Expected Results	Expected result of the test step.
Attachments	Amount of links or files that are attached to the test step.

The **Edit Step** view shows the details of the selected test step and allows you to edit the name, action description, expected results, and step properties of the test step.

The following buttons are available in the **Edit Step** view:

Button	Description
OK and New Step	Click when you are finished with editing the current step and you wish to save your changes and add a new step after the current.
OK	Click when you are finished with editing the current step and you wish to save your changes.
Reset	Click to revert your changes.

Usages Page

Tests > **Libraries of Shared Steps** > **<Shared Steps Object>** > **Usages**

The **Usages** page displays the tests and shared steps objects that use the selected shared steps object.

To access the usages page of a shared steps object, select the shared steps object in the **Libraries** tree and click the **Usages** tab.

For each call to the selected shared steps object, the **Usages** page displays the following properties:

ID	Identifier of the calling test or shared steps object. Hidden by default.
Name	The name of the calling test or shared steps object. Click on the name to access the test or shared steps object. The icon in front of the name indicates if the calling object is a test or another shared steps object.
Created On	Date and time the calling test or shared steps object was created.
Created By	Name of the user who created the calling test or shared steps object.

Project ID	Identifier of the project in which the calling test resides. Hidden by default. Empty if the calling object is another shared steps object.
Project Name	Name of the project in which the calling test resides. Empty if the calling object is another shared steps object.

Versions

A version of a shared steps object or a manual test is a revision of the element in a certain state. The version contains the information included in the element and the individual steps of the element at the creation time of the version. Attachments, parameters, and data sets are not included in the version for manual tests.

You can manually create versions of shared steps objects or manual tests or revert to previous versions. All versions of a shared steps object or a manual test are listed in the **History** page of the element. When you copy a project, the versions are also copied.

Creating a Version

To be able to revert a set of changes you want to apply to a shared steps object or a manual test, create a version of the element.

To create a version of a shared steps object or a manual test:

1. For a shared steps object, click **Tests** > **Libraries of Shared Steps** in the menu. For a manual test, click **Tests** > **Details View** in the menu.
2. Select the shared steps object in the **Libraries** tree, or the manual test in the **Tests** tree.
3. Click in the toolbar.

   This action is only enabled if the shared steps object or the manual test was changed.

   The **Create Versions** dialog box opens.
4. *Optional:* Enter a comment on the version in the **Comment** text box.
5. Click **Ok**. The new version is shown in the **History** page.

Viewing a Version

To see if a specific version of a shared steps object or a manual test applies to your testing needs, view the details of the version.

To view the details of a version of a shared steps object or a manual test:

1. For a shared steps object, click **Tests** > **Libraries of Shared Steps** in the menu. For a manual test, click **Tests** > **Details View** in the menu.
2. Select the shared steps object in the **Libraries** tree, or the manual test in the **Tests** tree.
3. Click the **History** tab.
4. Right click on the version of which you want to see the details.
5. Click **View version <ID>**.
6. The **View Version** dialog box opens. If the version includes attachments, you can view the attachments by clicking on their number in the **Attachments** column of the **Steps** section.

   Note: Use the arrows to change the version number and view additional versions.

Comparing Versions

To view the differences between two versions of a shared steps object or a manual test, compare the versions.

To compare two versions of a shared steps object or a manual test:

1. For a shared steps object, click **Tests** > **Libraries of Shared Steps** in the menu. For a manual test, click **Tests** > **Details View** in the menu.
2. Select the shared steps object in the **Libraries** tree, or the manual test in the **Tests** tree.
3. Click the **History** tab.
4. Select the two versions you want to compare with **CTRL + CLICK**.
5. Right click on the selection.
6. Select **Compare Versions**. The **Compare Versions** dialog box opens, displaying all the added, changed, and removed content.

Note: Use the arrows to change the version numbers and compare additional versions.

Reverting to a Previous Version

To undo changes to a shared steps object or a manual test, revert to a previous version.

To revert a shared steps object or a manual test to a previous version:

1. For a shared steps object, click **Tests** > **Libraries of Shared Steps** in the menu. For a manual test, click **Tests** > **Details View** in the menu.
2. Select the shared steps object in the **Libraries** tree, or the manual test in the **Tests** tree.
3. Click the **History** tab.
4. Right-click on the version to which you want to revert the shared steps object to.
5. Click **Revert to Version <ID>**.
6. The shared steps object or manual test is reverted to the selected version and a new version is created in the **History** page. Attachments, parameters, and data sets are not reverted for manual tests.

Library History Page

The **History** page displays the history of the selected shared steps object.

The **History** page includes an entry for each version of the selected shared steps object, and allows you to create new versions, view version details, revert to a previous version, and view the differences between versions.

To display only versions in the **History** page, and no other entries, right click on the **Version** column, select **Filter** and type `0` in the **>** text box.

The page shows the following items for each listed entry:

Item	Description
Actions	Only for version entries. The actions you can perform on a selected version are **View Version**, **Delete Version** and **Revert to Version**.
Version	Only for version entries. The version of the shared steps object.
Comment	A comment on the changes.
Created On	Date and time this history entry was created.
Created By	Name of the user who created this history entry.

Windows Script Host Tests

Windows Script Host (WSH) is part of the Windows platform and creates an environment for hosting scripts. When a script is to be run at the execution server, WSH plays the role of host. It makes objects and

services available for the script and provides a set of guidelines within which the script is executed. Among other things, WSH manages security and invokes the appropriate script engine.

The following online WSH resources might be of value to you:

- *http://labmice.techtarget.com/scripting/WSH.htm*
- *http://www.winguides.com/links.php?guide=scripting*
- Downloadable Script Interpreters: *http://aspn.activestate.com/ASPN/*

Supported Script Languages

WSH is language-independent for WSH-compliant scripting engines. Natively, the Windows platform supports Visual Basic Scripts, with file extension `.vbs`, and scripts written in the Java Script language, with file extension `.js`.

For other scripting languages, a dedicated script interpreter must be installed on the execution server. For example, if you install a Perl interpreter on an execution server, this will register a Perl scripting engine at the WSH environment for the extension `.pls`. Whenever a file with extension `.pls` is passed to the WSH tool, with the executable `cscript.exe`, it will invoke the appropriate interpreter because of the file extension. So the client of WSH, in this case the Silk Central Execution Server, does not need to know about the installation of the Perl interpreter.

Note: After installing a script interpreter, for example Active Perl, try to execute a script locally on the execution server by calling the WSH command line tool with a sample script before executing the script in Silk Central. To do so, open a command shell on the execution server and type `cscript <somescript>`, where `<somescript>` is the path to a script of your choice that is available on your execution server. This is exactly what Silk Central will call when executing a WSH test on an execution server. If the script is executed, then the scripting engine has been registered successfully.

The following scripting languages are WSH compatible:

Scripting Language	File Extension
Perl	`.pls`
Python	`.py`, `.pyw`
REXX	`.REXX`
TCL	`.tcl`

WSH Test Properties

Property	Description	
Script	You can define any file where a script engine is registered for the script language the file contains. Script files under source control are deployed automatically to execution servers, comparable to test sources for other test types.	
Switches	You can enter and pass the following settings to `cscript.exe` during the execution of the test:	
	//B	Batch mode suppresses all non-command-line console UI requests from the script. We recommended that you use this option to prevent a script from waiting for user input during unattended executions at the execution server.
	//U	We recommend to that you use unicode for redirected I/O from the console.
	//T:nn	Time-out, in seconds. The maximum time the script can run, by default = no limit. This option is used to prevent excessive execution of scripts. It sets a timer. When execution time exceeds the specified value, Cscript interrupts the script engine using the `IActiveScript::InterruptThread` method and terminates the process. There is a callback hook. If the time-out

Property	Description	
		is invoked, the `OnTimeOut` function is called to permit cleanup. Although it is possible to create infinite loops using this feature, it is more useful than harmful.
	//logo	Displays an execution banner at execution time that is visible at the beginning of the `log.txt` log file. This is the default setting.
	//nologo	Prevents display of the execution banner at execution time.
	//D	Enables active debugging.
	//E:engine	Use the engine to execute a script.
	//Job:xxxx	Execute a WSF job.
	//X	Execute the script in debugger.

Using Parameters in WSH Tests

Parameters that are defined for a WSH test automatically add a name and value pair to the command line as an additional argument and set the parameters as environment variables for the called process. This functionality allows you to access all parameters defined for your test within the WSH script.

For example a WSH test is defined with `myscript.js` as script and `//B` as switch. Additionally the test requires a parameter called `IPAddress` with the value `192.168.1.5` and another parameter called `Port` with the value `1492`. The resulting command line for the WSH execution in this example is:

```
csript myscript.js //B IPAddress=192.168.1.5 Port=1492
```

Viewing Information Returned from WSH

To collect results of a WSH execution, the WSH script must generate a file called `output.xml` in the current working directory of the WSH test. All files residing in this directory are stored in the database and are downloadable through the list of files for the test execution. Files are excluded from storage when their extensions are defined under the file extensions to ignore in results property in the **Projects** area.

Note: The current working directory is dynamically created for each WSH execution. Do not use an absolute path when creating the file. Any relative path used will correctly refer to the current working directory.

Any information that a script writes to the WSH standard output goes into the `log.txt` text file that resides in the current working directory. This file is stored in the database and can be viewed as it is included in the file list of the test execution.

The following example shows how to print log information from a script:

```
WScript.Echo "This info will be written to the log.txt file"
```

The XML structure of `output.xml` begins with an element *ResultElement* that defines an attribute named *TestItem*, which specifies the name of the *ResultElement*.

The *ResultElement* must contain an element named *ErrorCount*, optionally an element named *WarningCount*, and a list of Incident elements.

The *ErrorCount* and *WarningCount* elements must contain a positive number or zero. The *ErrorCount* and *WarningCount* of the top-level *ResultElement* are used for evaluating success conditions, which determine if a test has passed or failed. The XML file might contain additional elements that are not visible in the Silk Central GUI. The `output.xml` file is however stored in the database and is viewable as it is included in the file list of the executed test.

The *Incident* element represents an event that happened during the execution of the WSH test. *Message* and *Severity* are shown in the messages list of test executions in the Silk Central GUI. An *Incident* element must contain a *Message* and a *Severity* element.

The *Severity* element must hold one of the following values:

- Info
- Warning
- Error (or Exception)
- Failure

You can store additional information in the result file. The *ResultElement* may contain any number of sub-ResultElements, so information can be easily grouped. Sub-ResultElements make the result file easier to read. For compatibility reasons related to unit tests, JUnit and NUnit, ResultElement can be named TestSuite or Test.

The *ResultElement* may contain the following additional elements:

- *FailureCount*, which is treated the same way as error count
- *RunCount*, if a test is run multiple times
- *Timer*, for example for the duration of the test
- *WasSuccess*, for compatibility with NUnit result files
- *Asserts*, for compatibility with NUnit result files

The *Incident* element may contain a list of *Detail* elements.

The *Detail* element represents detailed information about an *Incident*. It must define a *TestName* element and an *Info* element. The *TestName* is used to give detailed information about where the *Incident* happened. The *Info* element holds detailed information about the *Incident*, for example a stack trace.

Note: Up through Silk Central 8.1, the value of the *Message* and *Info* elements had to be URL encoded (ISO-8859-1). Since version 8.1.1, URL encoding is no longer allowed.

Sample Result File

```
<ResultElement TestItem="WshOutputTest">
  <ErrorCount>1</ErrorCount>
  <WarningCount>1</WarningCount>
  <Incident>
    <Message>some unexpected result</Message>
    <Severity>Error</Severity>
    <Detail>
      <TestName>function main()</TestName>
      <Info>some additional info; eg. stacktrace</Info>
    </Detail>
  </Incident>
  <Incident>
    <Message>some warning message</Message>
    <Severity>Warning</Severity>
    <Detail>
      <TestName>function main()</TestName>
      <Info>some additional info; eg. stacktrace</Info>
    </Detail>
  </Incident>
</ResultElement>
```

Java Script Sample

The following script was used to generate the sample result file. To try this script save it with the extension `.js`.

```
function dumpOutput(dumpFile)
```

```
{
  dumpFile.WriteLine("<ResultElement TestItem=\"WshOutputTest
\">");
  dumpFile.WriteLine("  <ErrorCount>1</ErrorCount>");
  dumpFile.WriteLine("  <WarningCount>1</WarningCount>");
    dumpFile.WriteLine("  <Incident>");
    dumpFile.WriteLine("    <Message>some unexpected result</
Message>");
    dumpFile.WriteLine("    <Severity>Error</Severity>");
    dumpFile.WriteLine("    <Detail>");
    dumpFile.WriteLine("      <TestName>function main()</
TestName>");
    dumpFile.WriteLine("      <Info>some additional info; eg.
stacktrace</Info>");
    dumpFile.WriteLine("    </Detail>");
    dumpFile.WriteLine("  </Incident>");
    dumpFile.WriteLine("  <Incident>");
    dumpFile.WriteLine("    <Message>some warning message</
Message>");
    dumpFile.WriteLine("    <Severity>Warning</Severity>");
    dumpFile.WriteLine("    <Detail>");
    dumpFile.WriteLine("      <TestName>function main()</
TestName>");
    dumpFile.WriteLine("      <Info>some additional info; eg.
stacktrace</Info>");
    dumpFile.WriteLine("    </Detail>");
    dumpFile.WriteLine("  </Incident>");
  dumpFile.WriteLine("</ResultElement>");
}

function main()
{
  var outFile;
  var fso;
  fso = WScript.CreateObject("Scripting.FileSystemObject");
  outFile = fso.CreateTextFile("output.xml", true, true);
  outFile.WriteLine("<?xml version=\"1.0\" encoding=\"UTF-16\"?
>");

  dumpOutput(outFile);
  outFile.Close();
  WScript.Echo("Test is completed");
}

main();
WScript.Quit(0);
```

Visual Basic Script Sample

The following Visual Basic script also generates the sample result file, and saves it as `Output.xml`. To try this script save it with the extension `.vbs`.

```
WScript.Echo "starting"

Dim outFile
Dim errCnt
Dim warningCnt

outFile = "output.xml"
errCnt = 1 ' retrieve that from your test results
warningCnt = 1 ' retrieve that from your test results
```

```
Set FSO = CreateObject("Scripting.FileSystemObject")
Set oTX = FSO.OpenTextFile(outFile, 2, True, -1) ' args: file,
8=append/2=overwrite, create, ASCII

oTX.WriteLine("<?xml version=""1.0"" encoding=""UTF-16""?>")
oTX.WriteLine("<ResultElement TestItem=""PerlTest"">")
oTX.WriteLine("  <ErrorCount>" & errCnt & "</ErrorCount>")
oTX.WriteLine("  <WarningCount>" & warningCnt & "</
WarningCount>")
oTX.WriteLine("  <Incident>")
oTX.WriteLine("    <Message>some unexpected result</Message>")
oTX.WriteLine("    <Severity>Error</Severity>")
oTX.WriteLine("    <Detail>")
oTX.WriteLine("      <TestName>function main()</TestName>")
oTX.WriteLine("      <Info>some additional info; eg.
stacktrace</Info>")
oTX.WriteLine("    </Detail>")
oTX.WriteLine("  </Incident>")
oTX.WriteLine("  <Incident>")
oTX.WriteLine("    <Message>some warning message</Message>")
oTX.WriteLine("    <Severity>Warning</Severity>")
oTX.WriteLine("    <Detail>")
oTX.WriteLine("      <TestName>function main()</TestName>")
oTX.WriteLine("      <Info>some additional info; eg.
stacktrace</Info>")
oTX.WriteLine("    </Detail>")
oTX.WriteLine("  </Incident>")
oTX.WriteLine("</ResultElement>")
```

Test Export, Update, and Import

The Silk Central/Excel integration allows you two distinct options for modifying your tests. These include:

- Export and update: this option allows you to create your tests in Silk Central, export to Excel to make the changes, and then update them back into Silk Central.
- Import: this options allows you to create tests in excel and then import them into Silk Central.

In both scenarios, you will need to a mapping file to synchronize the columns between the two products.

Note: Currently, Silk Central supports only Microsoft Excel 2007 (.xslx) files for import, and the import is limited to manual tests.

Export, Update, and Import Rules

The following business rules apply during the export-update and import processes:

General Rules

- If a test row in Excel does not have a `TestID` or a `ParentNodeID`, then it is considered to be a new test and is created in a new folder under the test container from which the import functionality was executed.
- You can add existing TestIDs to update tests on update, and you can add existing SharedStepIDs to add new shared steps on import/update.
- Data-driven tests are not supported with export-update and import functionality. Enabled data-driven tests will not be exported.
- New automated tests are not added during import and update, but existing ones are modified during an update.
- If a test is moved to a different folder hierarchy in Excel, the move is ignored during update.
- If a test is missing in Excel (it was deleted), the test is not deleted during update.

- If a test is moved from the Silk Central container after an export, no changes will occur to it during the update.
- Import uses `Parent` column for (new) folder names.
- Update uses `ParentID` column for folders for new tests (or creates a folder with date/time syntax if not specified).
- Cannot use `A-Z` as customized column name….these are reserved for Excel's `A-Z`, which can be used in mapping.
- Cannot have blank rows in Excel.

Shared steps

- Are added for import and update.
- Are deleted and reordered for update.
- Will not be updated.
- If the Excel **SharedStepID** does not exist in Silk Central, it will not be added.

Test Export and Update

This section describes how to export and to update tests from Microsoft Excel into Silk Central.

Use the export-update to Excel functionality if you want to perform bulk edits on existing tests.

Note: The following fields are not editable in Excel: **Status**, **TestType**, **StepID**, and **StepOrder**.

Export and Update Overview

The following is a high level overview for exporting and updating:

- Select the container or folder.
- Export to Excel.
- Make changes in Excel.
- Verify/create the mapping file.
- Update back into Silk Central.

Exporting a Test to Excel

1. In the menu, click **Tests** > **Details View** .
2. Right click a test container or test folder that includes the tests that you want to export.
3. Select **Export to Excel...** The **Export Test to Excel File** dialog box displays.
4. Select the mapping file from the **Choose Mapping File** list box.

   The default mapping file is `TestPropertiesDefaultMapping.xml`. For information about creating customized mapping files, see *Test Mapping File*.
5. *Optional:* Click **Edit Mapping** to edit the test mapping file.
6. Click **OK**.
7. Click **Save** on the **File Download** dialog box to save the file.

Test information is saved into the Excel file for you to edit.

Updating a Test from Excel

Before you can update a test from Excel, you first need to export the test from Silk Central.

1. In the menu, click **Tests** > **Details View** .
2. Right click a test container or folder that includes the tests that you want to update.

3. Select **Update from Excel...** The **Update Test from Excel File** dialog box opens.
4. Select the mapping file that you want to use from the **Choose Mapping File...** list.
5. To edit the mapping file, click **Edit Mapping**.
6. Click **Browse** to select the Excel file in the **Test File (.xlsx)** field.
7. Click **OK**.

Test Import

This section describes how to import tests from Microsoft Excel into Silk Central.

Silk Central enables you to import tests from Microsoft Excel (Excel) into any container or folder in the **Tests** area and then maintain and execute all included tests in Silk Central. The import is a one-time event.

Before you can import tests, you need to create a test file in Excel. For more information, see *Test File*.

Silk Central uses the information stored in the Excel file and in a mapping file to determine what data to store. Silk Central uses a mapping file to map the tests in the Excel file to the tests in the **Tests** area. A default mapping file named `TestPropertiesDefaultMapping.xml` is preselected for the import. You can choose your own customized mapping file to map your tests. For more information about mapping files, see *Test Mapping File*.

Importing a Test from an Excel File

To import a test from an Excel file into the **Tests** area:

1. In the menu, click **Tests** > **Details View** .
2. In the **Tests** tree, right-click the folder or container that you want to use as the parent node of the imported test and choose **Import from Excel File**. The **Import Test from Excel File** dialog box opens.
3. Select the mapping file from the **Choose Mapping File** list box.

   The default mapping file is `TestPropertiesDefaultMapping.xml`. For information about creating customized mapping files, see *Test Mapping File*.
4. *Optional:* Click **Edit Mapping** to edit the test mapping file.
5. Either type the fully qualified path of the test file into the **Test File** text box or click **Browse** to search for the test file.
6. Click **OK**. A message informs you if the import was successful.
7. Click **OK** to close the message.

Test File

You can create a test file in Excel to import tests into Silk Central. In the test file, you can define all tests and test steps, along with their properties, attributes, and parameters.

To map the tests in your test file to the tests in Silk Central, use an XML mapping file. The mapping file defines the location of the elements in your test file to Silk Central. You can give the items included in the test file any name you like, as long as you map them appropriately in your mapping file. For more information about mapping files, see *Test Mapping File*.

Define the following items for a test and a test step in the test file:

Item	Description
Test	Define the name of the test. Optionally, you can also define a description for the test, the estimated duration of the test, and the path to the test from the root folder. If you define no path, the test is added directly into the root folder. Additionally, you can define properties, attributes, and parameters for the test.

Item	Description
Test Step	Define the name of the test step. Optionally, you can also define the action that is performed in the test step, and the result that you expect of the test step. Additionally, you can define test step properties for the test step.

Note: Currently, Silk Central supports only `.xslx` files for import, and the import is limited to manual tests.

Mapping File

The mapping file is used during the update process of export-update and during the import process when data is coming into Silk Central from Excel.

Editing the Test Mapping File

To edit the test mapping file:

1. In the menu, click **Tests** > **Details View** .
2. In the **Tests** tree, right-click the folder or container that you want to use as the parent node of the imported test and choose **Import from Excel File**. The **Import Test from Excel File** dialog box opens.
3. Click **Edit Mapping**. The **Edit Mapping** dialog box opens.
4. Edit the variables of the test file in the text boxes.

   Note: For information on the variables included in the test file, see *Test File*.
5. *Optional:* Edit the name of the mapping file.
6. Click **OK** to save your changes or click **Cancel** to cancel your changes.

Test Versioning

Silk Central creates new versions of tests during the import and update processes.

When you perform an update or import from Excel into Silk Central, two new versions of the test tree are created. The versioning process will record a snapshot before and after the import/update process.

Export-Update

There are two versioning options during the export-update process:

- Tests will contain default comments to note that they were updated from excel if they are added or modified.
- You can also manually enter your own comment on the **Update Test from Excel File** dialog box during the update. This will apply for all of the test cases.

Import

Tests will contain default comments of `Created`.

Integrating Silk Central into Rally

To use the project management tool Rally with Silk Central, you have to integrate Silk Central into Rally.

A mashup is shipped with Silk Central, that enables you to display user-story related test-coverage information from Silk Central in Rally. You can link each test in Silk Central to one or more user stories in Rally. To link tests to a user story, assign an attribute with the value of the formatted user-story ID in Rally to each test.

Creating a Custom HTML App in Rally

Create a custom app in Rally using HTML or Javascript to display user-story related test-coverage information.

To create a custom HTML app:

1. Navigate to the tab in Rally where your custom app should reside.
2. Click **Customize Page** and click **Add App**. The **App Catalog** displays.
3. Click **Custom HTML** under **Custom** and click **Add This App**.
4. Enter a title and switch to Silk Central.
5. In the menu, click **Help** > **Tools** .
6. Click **Rally Iteration Status Mashup** and copy the HTML code.
7. Switch back to Rally and paste the HTML code into the **HTML** field.
8. Configure the script in the field to match your Silk Central environment:
   - Check if the valid script source is set, for example `<script type="text/javascript" src="http://localhost:19120/silkroot/script/sctm-toolkit.js"></script>`.
   - Check if the valid URL for Silk Central is set, for example `var SCTM_URL = "http://localhost:19120/"`.
   - Check if a valid Silk Central project ID is set, for example `var SCTM_PROJECT_ID = 0`.
   - Check if a valid attribute name is set, for example `var SCTM_ATTRIBUTE_FOR_RALLY_US = "rallyattr"`.
   - Make sure usage of the `FormattedID` from Rally is enabled, `var USE_FORMATTED_ID = true`.
9. Click **Save**. Your custom HTML app in Rally is created.

Linking User Stories from Rally to Tests

To link Rally user stories to Silk Central tests:

1. Select the project in Silk Central that contains the tests you want to link the Rally user stories to.
2. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
3. Click the **Attributes** tab.
4. Click **New Attribute**. The **New Attribute** dialog box displays.
5. Type `rallyattr` in the **Name** field.
6. Select **Text** from the **Type** list.
7. Click **OK** to create the new attribute.
8. Assign the new attribute to each test that you want to link user stories from Rally to.
9. Set the value of the attribute to be the value of the **FormattedID** of the appropriate Rally user story for each test. If you assign multiple stories to a single test, separate the IDs with a comma and put no whitespace characters between them. For example, `US10,US12,US14`.

Screen Capturing

You can enable screen capturing for a test element or an execution plan. The screenshots are added to the result files in the **Files** page and the **Timeline** page of the **Test Run Results** dialog box. You can then analyze the screenshots, for example if errors have occurred during tests.

The **Screen Capturing** setting in the **Deployment** page of an execution plan can override the setting for a specific test element, which is included in the execution plan.

Enabling Screen Capturing

To enable screen capturing for a test:

1. In the menu, click **Tests** > **Details View** .
2. In the **Tests** tree, select a container, folder, or test.
3. Click the **Parameters** tab.
4. Click **Add Custom Parameter**. The **Set Custom Parameter** dialog box opens.
5. In the **Name** text box, type `captureScreen`.
6. From the **Type** list box, select `String`.
7. In the **Value** text box, type one of the following:
   - `onError`, if you want to add a screenshot to the result files when an error occurs during the execution of the execution plan.
   - Any other string or nothing, if you do not want to add a screenshot to the result files.

Video Capturing

You can enable video capturing for a test element or an execution plan. The videos are added as a WMV video file to the result files in the **Files** page of the **Test Run Results** dialog box. You can then analyze the videos, for example if errors have occurred during tests.

The **Video Recording** setting in the **Deployment** page of an execution plan can override the setting for a specific test element, which is included in the execution plan.

Note: Video capturing is currently enabled only for execution servers with Microsoft Windows as their operating system. To use video capturing on a Windows Server 2008 execution server, you need to install the following server features:

- Desktop Experience
- Quality Windows Audio Video Experience

To use video capturing on a Windows Server 2012 execution server, you need to install the following server features:

- Desktop Experience
- Media Foundation

Attention: The process of capturing videos is very CPU-intensive. Use this functionality only when needed. To use this functionality you require a system with sufficient CPU power, for example a system with multiple CPUs.

Capturing a video for each individual test case in a suite is supported out of the box for JUnit 4 tests and Silk Test Classic Plan tests. To use this feature for other test types, use the methods in the `TestCaseStartFinishSocketClient` interface. For additional information, see *Indicating Start and Finish for Video Capturing*.

Enabling Video Capturing

To enable video capturing for a test:

1. In the menu, click **Tests** > **Details View** .
2. In the **Tests** tree, select a container, folder, or test.
3. Click the **Parameters** tab.
4. Click **Add Custom Parameter**. The **Set Custom Parameter** dialog box opens.
5. In the **Name** text box, type `recordVideo`.

6. From the **Type** list box, select `String`.
7. In the **Value** text box, type one of the following:
   - `always`, if you want to add a video to the result files on every execution of the execution plan.
   - `onError`, if you want to add a video to the result files when an error occurs during the execution of the execution plan.
   - Any other string or nothing, if you do not want to add a video to the result files.

Execution Planning

This section explains how to manage execution plans, including assigning tests, scheduling test runs, setting up dependencies, configuring dynamic hardware-provisioning with keywords, and configuring a deployment environment.

The **Execution Planning** area enables you to maintain control over test executions during development and testing. The area enables you to configure execution plans, schedule execution plans, assign tests to execution plans, set up execution plan dependencies, configure execution-server deployment, and configure dynamic hardware-provisioning with keywords. Execution plans are displayed, organized, and maintained through a hierarchical tree structure, the **Execution Plans** tree. Each execution plan may have any number of child tests associated with it. The **Execution Plans** tree enables you to organize execution plans within folders, in any number of hierarchy levels.

Execution Planning Toolbar Functions

Execution Planning > **Details View**

Execution Planning > **Document View**

The executions toolbar provides important commands for managing your execution plans.

Note: Some commands in the execution planning toolbar are also available through context menus in the **Execution Plans** tree.

The following commands are included in the execution planning toolbar:

Command	Icon	Description
Details View		Displays the **Details View**, which enables you to drill deeply into the properties of a single element of the **Execution Plans** tree.
Document View		Displays the **Document View**, which shows selected properties of all executions in a single view.
New Child Folder		Add a new folder to the selected project or folder. This command is disabled for execution plans that are assigned to a testing cycle.
New Child Testing Cycle		Add a new testing cycle to the selected project or folder.
New Child Configuration Suite		Add a new configuration suite to the selected project or folder. This command is disabled for execution plans that are assigned to a testing cycle.
New Child Execution Plan		Add a new execution plan to the selected project, folder, or configuration suite. This command is disabled for execution plans that are assigned to a testing cycle.
Edit		Open the selected element of the **Execution Plans** tree for editing.

Command	Icon	Description
Delete		Deletes the selected element of the **Execution Plans** tree. This command is disabled for execution plans that are assigned to a testing cycle.
Cut		Cut an element of the **Execution Plans** tree and save it to the clipboard. This command is disabled for execution plans that are assigned to a testing cycle.
Copy		Copy an element of the **Execution Plans** tree to the clipboard. This command is disabled for execution plans that are assigned to a testing cycle.
Paste		Paste an element from the clipboard to the **Execution Plans** tree. This command is disabled for execution plans that are assigned to a testing cycle.
Paste as Child		Paste an element from the clipboard as a child to the currently selected element of the **Execution Plans** tree. This command is disabled for execution plans that are assigned to a testing cycle.
Run		Start the execution of the tests that are assigned to the execution plan. This command is disabled for execution plans that are assigned to a testing cycle.
New Filter		Create a new custom filter for the **Execution Plans** tree.
Filters		Lists the available filters for the **Execution Plans** tree
Edit Filter		Edit the currently selected custom filter.
Delete Filter		Delete the currently selected custom filter.
Copy Filter		Copy the currently selected custom filter.
Download as PDF		This function is enabled only in the **Document View**. The action generates a PDF that includes all currently visible nodes of the **Execution Plans** tree.

Execution Planning Document View

Execution Planning > **Document View**

The **Execution Planning** area offers two views of execution properties: **Document View** and **Details View**. **Document View** provides a high-level, read-only view of the defined properties and characteristics of the latest run of all execution plans, folders, and configuration suites in the selected project. Use the **Document View** to plan the execution of your execution plans. You can use filters to obtain an execution-duration estimate of the filtered execution-plan subset.

The **Document View** displays the following columns for a selected element in the **Execution Plans** tree:

Column	Description
Status	The cumulated test statuses of the latest run of the execution plan, or the cumulated test statuses of all contained execution plans, for a folder or configuration suite. If you apply a filter to the **Execution Plans** tree, the test status totals are based on the filtered execution plans only.

Column	Description
Assigned Tests	Total number of assigned tests. If you apply a filter to the **Execution Plans** tree, the amount of the assigned tests is based on the filtered execution plans only.
Build	Build that is used when the execution plan is executed.
Version	Version that is used when the execution plan is executed.
Product	Product that the associated test container is based on.
Priority	For automated execution plans, when more than one execution plan is queued but only one execution server is available, the **Priority** determines which execution plan is executed first.
Last Execution	Last time the execution plan was started.
Planned Time	Total planned time for all manual tests. If you apply a filter to the **Execution Plans** tree, the planned time is based on the filtered execution plans only.
Duration	Duration of the latest run of an execution plan, or in case of a folder or configuration suite, the cumulated durations of the latest runs of all contained execution plans. If you apply a filter to the **Execution Plans** tree, the duration is based on the filtered execution plans only.
Next Execution	Next scheduled execution.
Test Container	Test container containing the tests that can be assigned to this execution plan.

Note: Execution plan totals accumulate to the parent level, for all currently displayed execution plans. If you apply a filter to the **Execution Plans** tree, the execution plan totals are based on the filtered execution plans only. For example, the execution plan totals include execution runs from all child execution plans that are selected with the filter, and the project totals include execution runs from all execution plans that are selected with the filter.

Manual Execution Planning

To access this page, click **Execution Planning** > **Manual Execution Planning**.

A typical challenge of planning your manual testing is that there are too many tests and not enough resources. It is important to execute the tests with the most benefit. To support you here, the **Manual Execution Planning** page is divided into two views:

Test Selection	Select manual tests and schedule them in testing cycles.
Test Assignment	Plan the execution of manual tests in detail. Determine which manual tester has to execute which tests in a certain testing cycle.

To access the **Test Selection** view, click **Execution Planning** > **Manual Execution Planning**.

To access the **Test Assignment** view, click **Test Assignment** on the top right of the **Manual Execution Planning** page. To get back to the **Test Selection** view, click **Test Selection** on the top left.

Test Selection

The **Test Selection** view is the initial view shown when you enter the **Manual Execution Planning** page. Here you can narrow down the list of manual tests with filters and quality goals, create and edit testing cycles, and assign the filtered manual tests to testing cycles.

The **Test Selection** view is divided into three areas:

- The **Filter Criteria** area on the left side. With the filters you can narrow down the tests shown in the next area.
- The **Matching Tests** area in the middle. This list shows all available tests. When you apply filters, just the filtered tests are shown.
- The **Testing Cycles** area on the right side. Here you can assign tests from the list in the middle to a testing cycle.

Filter Criteria

The **Filter Criteria** area has three boxes:

Filter Summary	Lists all filters applied to the page. Click ✕ next to a filter to remove the filter from the list.
Tests Filter	Contains a list with all test filters of the current project. Select a test filter. The filtered tests are shown in the **Matching Tests** area.
Quality Goals/ Assignment Progress	Shows a list of the quality goals in the project and the values of the quality goals. Select one or more quality goal values. The filtered tests are shown in the **Matching Tests** area. Each quality goal value has an **Assignment Progress** bar. The bar shows the number of tests that are already assigned and the number of tests that are not yet assigned to an execution plan. **Attention:** These numbers include manual and automated tests. Move the mouse over a bar to show: • The number of **Total matching tests**. • The number of **Tests to reach goal**. • The number of **Already assigned tests**. • The number of **Not yet assigned tests**. If **Already assigned tests** is greater than **Tests to reach goal** an exclamation point appears. This means that more tests are assigned than required. **Attention:** These numbers include manual and automated tests.

Note: You can only select one single test filter and one goal value per quality goal.

If you select multiple quality goal values (from different quality goals) or a quality goal value and a test filter, only those tests that match all criteria are shown in the **Matching Tests** area.

Matching Tests

The **Matching Tests** area shows the manual tests that match the selected filter criteria. By default, no quality goals or filters are selected so all manual tests display in the grid.

Select filters and quality goal values in the **Filter Criteria** area to narrow down the list of manual tests.

The caption of the **Matching Tests** grid shows:

- The number of the currently selected tests.
- The total planned time of the currently selected tests.

You can perform the following actions in the grid:

- To assign a manual test to a testing cycle, drag the test onto the header of a testing cycle.
- To assign a manual test to a manual tester, drag the test onto the tester in the testing cycle.
- Right-click on a column to sort, to group and to filter manual tests, to add or remove columns and to reset filters or the view.
- Right-click on a manual test to show the test details or to print the manual test.
- You can select multiple tests with **Ctrl+Click** or **Shift+Click**.
- You can multi-assign tests to different testing cycles/testers. The column **Assigned** shows a green check mark if the test is assigned at least once.
- Click to show the test details.
- Click to show the test in the **Tests Details View**.

Testing Cycles

The **Testing Cycles** area lists all testing cycles of the current project. It is the central part of the **Manual Execution Planning** page and displays on both the **Test Selection** and on the **Test Assignment** view. The testing cycles are ordered chronologically.

Click **New Testing Cycle** on the top of the **Testing Cycles** area to create a new testing cycle. Click **Show/Hide Testing Cycles** if you want to hide testing cycles. Hiding testing cycles helps you to keep the **Testing Cycles** area tidy and to enhance the performance. It is especially useful when you have lots of testing cycles.

In the header of a testing cycle, click to perform the following actions:

- **Edit Testing Cycle**
- **Edit Assigned Testers**
- **Edit Milestones**
- **Import Tests from Execution Plan**
- **Duplicate Testing Cycle**
- **Hide Testing Cycle**
- **Delete Testing Cycle**
- **Start Testing Cycle**
- **Finish Testing Cycle**

In a testing cycle, click on a manual tester to display the assigned tests in the **Assigned Tests** area.

Click on the header of a testing cycle to select it. The tests that are assigned to the testing cycle (but not to a specific manual tester) are listed in the **Assigned Tests** area.

If the **Assigned Tests** area is not displayed, click **Test Assignment** on the top right.

The testing cycle boxes show:

- The name of the testing cycle.
- The start and end dates.
- A burn-down chart that visualizes the testing progress. It shows how likely it is that all tests will be finished by the end of the testing cycle. Move your mouse over one of the bars to show the number of tests that are not completed.
- The percentage of the capacity that is covered. This percentage is calculated as follows: The sum of planned time of the assigned tests divided by the capacity sum of the manual testers. This percentage displays both for the testing cycle and each individual tester. If a testing cycle or a manual tester is overloaded with tests, the green box turns into red. Move the mouse over this percentage to get detailed information.
- The number of assigned tests and the completed tests for both the testing cycle and each individual tester. Move the mouse over these numbers to get detailed information.
- The manual testers that are assigned to each testing cycle. Click on the number of the assigned testers to expand or collapse the detailed information.

Creating Testing Cycles

Note: You can also create new testing cycles in the **Execution Planning Details View** and **Document View**.

To create a testing cycle:

1. In the menu, click **Execution Planning** > **Manual Execution Planning**. The **Manual Execution Planning** page displays.
2. In the **Testing Cycles** area, click **New Testing Cycle**. The **New Testing Cycle** dialog box appears.
3. Enter a **Name** for the testing cycle.
4. Optionally enter a **Description**.
5. Click next to **Start date** to set the start date of the testing cycle.
6. Click next to **End date** to set the end date of the testing cycle.
7. In `hh:mm` format, enter the amount of time you want to provide for the testing cycle (**Capacity**).

   This capacity will be replaced by the sum of the tester capacities as soon as you add a tester to the testing cycle.
8. Click **OK**. The testing cycle is added to the **Testing Cycles** area.

Adding Manual Testers to a Testing Cycle

After you have created a testing cycle, you may want to add manual testers and capacity to it.

You can also add manual testers in the **Execution Planning Details View**. In the menu, click **Execution Planning** > **Details View**. Click a testing cycle on the left side and click **Add/Remove Testers** on the **Properties** page.

To add manual testers to a testing cycle:

1. In the menu, click **Execution Planning** > **Manual Execution Planning**. The **Manual Execution Planning** page displays.
2. In the header of a testing cycle in the **Testing Cycles** area, click > **Edit Assigned Testers**. The **Edit Assigned Testers** dialog box appears.
3. Click **Add/Remove Testers**. The **Add/Remove Testers** dialog box appears.
4. Select the user group you want to use from the **Available** list.
5. Select one or more users from the **Available** list.

   You can select multiple users with **CTRL + CLICK** or **SHIFT + CLICK**.
6. Click **Add** or **Add All** to add users to the **Selected** list.
7. Click **OK**. The users are added to the list of testers.
8. Define a capacity for each user of the testing cycle in the **Capacity** field using the `hh:mm` format.
9. Click **Close**. The testing cycle **Capacity** is updated with the cumulative value of the capacity for each manual tester.

Editing Assigned Testers

You can add/remove manual testers to/from testing cycles and define the capacity for each individual tester.

To edit assigned testers:

1. In the menu, click **Execution Planning** > **Manual Execution Planning**. The **Manual Execution Planning** page displays.
2. In the **Testing Cycles** area, in the header of a testing cycle, click > **Edit Assigned Testers**. The **Edit Assigned Testers** dialog box appears.

3. Click **Add/Remove Testers**. The **Add/Remove Testers** dialog box appears.
4. Select the user group you want to use from the **Available** list.
5. Add or remove testers:
   - Select one or more users in the **Available** list and click **Add** or **Add All**.
   - Select one or more users in the **Selected** list and click **Remove** or **Remove All**.

   You can select multiple users with **CTRL + CLICK** or **SHIFT + CLICK**.
6. Click **OK**. The users are now added to or removed from the **Assigned Testers** list.
7. Define a capacity for each user of the testing cycle in the **Capacity** field using the `hh:mm` format.
8. Click **Close**. The testing cycle **Capacity** is updated with the cumulative value of the capacity for each manual tester.

You can also edit assigned testers in the **Details View**. In the menu, click **Execution Planning** > **Details View**. Click a testing cycle on the left side and click **Add/Remove Testers** on the **Properties** page.

Adding Milestones

A milestone is a target that must be reached by a specified date. Milestones are useful when the capacity of the testers is not spread evenly over the testing cycle. These milestones are represented by marks on the burn-up charts (on the dashboard) dispersed according to the date and capacity.

The following is an example of milestones within the context of a testing cycle:

- At least 20 percent of the tests must be completed by September 13th.
- At least 50 percent of the tests must be completed by September 15th.
- 100 percent of the tests must be completed by September 19th (end of the testing cycle).

To add a milestone:

1. In the menu, click **Execution Planning** > **Manual Execution Planning**. The **Manual Execution Planning** page displays.
2. In the **Testing Cycles** area, in the header of a testing cycle, click > **Edit Milestones**. The **Edit Milestones** dialog box appears.
3. Click **Add Milestone**, define a due date and a percentage of completed tests, and click **OK**.
4. To edit a milestone, click . To delete a milestone, click .
5. Add additional milestones and click **Close**.

Note: If you duplicate a testing cycle or if you edit the start and end date, make sure the milestones are still within the defined period of the testing cycle.

Assigning Tests to Testing Cycles

To assign tests to a testing cycle:

1. In the menu, click **Execution Planning** > **Manual Execution Planning**. The **Manual Execution Planning** page displays.
2. Click a test in the **Matching Tests** area and drag it onto the header of a testing cycle.

   You can select multiple tests with **Ctrl+Click** or **Shift+Click**.

   The tests are added to the testing cycle.

Note: You can assign a test several times to different testing cycles/testers. The column **Assigned** in the **Matching Tests** area shows a green check mark if the test is assigned at least once.

Assigning Tests to Manual Testers

Note: Before you can assign tests to manual testers, you need to add manual testers to the testing cycle.

Assign tests to manual testers to distribute the workload among the testers.

You can assign a test several times to different testing cycles/testers. The column **Assigned** in the **Matching Tests** area shows a green check mark if the test is assigned at least once.

You can also assign tests to manual testers in the **Test Assignment** view. Click **Test Assignment** on the top right. Click a test in the **Assigned Tests** area and drag it onto a manual tester in a testing cycle.

To assign tests to manual testers:

1. In the menu, click **Execution Planning** > **Manual Execution Planning**. The **Manual Execution Planning** page displays.
2. In a testing cycle, click **Tester(s) assigned** to expand the list of manual testers.
3. Click a test in the **Matching Tests** area and drag it onto a manual tester in a testing cycle.

   You can select multiple tests with **Ctrl+Click** or **Shift+Click**.

   The tests are added to the manual tester.

Importing Tests from Execution Plan

You need the **Manage testing cycles and configurations** permission to import tests from an execution plan.

To import tests from an execution plan:

1. In the menu, click **Execution Planning** > **Manual Execution Planning**. The **Manual Execution Planning** page displays.
2. In the **Testing Cycles** area, in the header of a testing cycle, click > **Import Tests from Execution Plan**. The **Select Execution Plan** dialog box appears.
3. Select an execution plan and click **OK**. All tests of the execution plan are assigned to **No specific tester** of the testing cycle.

Duplicating Testing Cycles

You need the **Manage testing cycles and configurations** permission to duplicate a testing cycle.

To duplicate a testing cycle:

1. In the menu, click **Execution Planning** > **Manual Execution Planning**. The **Manual Execution Planning** page displays.
2. In the **Testing Cycles** area, in the header of a testing cycle, click > **Duplicate Testing Cycle**. The **Duplicate Testing Cycle** dialog box appears. The properties (**Name**, **Description**, **Start Date**, **End Date** and **Capacity**) are duplicated and filled in the fields.
3. *Optional:* Choose how you want to copy the test assignment. For example, you can choose not to copy **Passed** tests, enabling you to re-run the testing cycle only with **Failed** and **Not Executed** tests.
4. Click **OK**. The testing cycle is duplicated with all assigned tests and testers.

Hiding Testing Cycles

You can hide testing cycles on the **Manual Execution Planning** page to keep the page tidy and to enhance the performance. This is especially useful when you have lots of testing cycles.

To hide a testing cycle:

1. In the menu, click **Execution Planning** > **Manual Execution Planning**. The **Manual Execution Planning** page displays.

2. In the **Testing Cycles** area, click **Show/Hide Testing Cycles**. The **Visible Testing Cycles** dialog box appears.
3. Uncheck all testing cycles that shall be hidden and click **OK**.
4. To quickly hide a certain testing cycle, you can also click in the header of a testing cycle and click **Hide Testing Cycle**.
5. To show a hidden testing cycle, again click **Show/Hide Testing Cycles** and mark the testing cycle.

If you hide a testing cycle on the **Manual Execution Planning** page, you can still see it in the **Execution Plans** tree in the **Details View** and in the **Document View** as well as in the dashboard panels and in the reports. The visibility settings are done per user. Every user can define which testing cycle to display and which to hide.

Starting Testing Cycles

Note: Before starting a testing cycle, verify that the start date of the testing cycle corresponds with the current date. If not, ensure that you are able to start the testing cycle on a different date.

To start a testing cycle:

1. In the menu, click **Execution Planning** > **Manual Execution Planning**. The **Manual Execution Planning** page displays.
2. In the **Testing Cycles** area, in the header of a testing cycle, click > **Start Testing Cycle**.

   A testing cycle can only be started once. If the testing cycle is already started, this action is disabled. A running testing cycle displays `Testing Progress` between the start and end date. A testing cycle that has not been started yet displays `Not Yet Started`. A finished testing cycle displays `Finished`.

The assigned manual tests are distributed to the manual testers. The testers are notified by email and the tests will display in their **Manual Tests Assigned to Me** panel on their dashboard.

You can still change a running test, assign additional tests, remove tests, or move tests between testers after a testing cycle has started.

Finishing Testing Cycles

Note: Before finishing a testing cycle, verify that the end date of the testing cycle corresponds with the current date. If not, ensure that you are able to finish the testing cycle on a different date.

To finish a testing cycle:

1. In the menu, click **Execution Planning** > **Manual Execution Planning**. The **Manual Execution Planning** page displays.
2. In the **Testing Cycles** area, in the header of a testing cycle, click > **Finish Testing Cycle**.

   If the testing cycle is not yet started, this action is disabled. A testing cycle that is not running displays `Not Yet Started` between the start and end date. A running testing cycle displays `Testing Progress`. A finished testing cycle displays `Finished`.
3. The **Finish Testing Cycle** dialog box appears. Select the action you want to perform for tests that have not been executed and click **Finish**. The selected status change will only be applied to non-executed tests for which no status reason has been set.

Note: Finished testing cycles are locked. You cannot add/remove tests or testers to/from a finished testing cycle. You can copy a test from a finished testing cycle by dragging it onto another testing cycle or tester.

Deleting Testing Cycles

Note: You can also delete testing cycles in the **Execution Planning Details View** and **Document View**. Right-click on a testing cycle and click **Delete**.

To delete a testing cycle:

1. In the menu, click **Execution Planning** > **Manual Execution Planning**. The **Manual Execution Planning** page displays.
2. In the header of a testing cycle of the **Testing Cycles** area, click > **Delete Testing Cycle**.
3. Click **Yes** on the **Deletion Confirmation** dialog box.

Test Assignment

To access this page, click **Execution Planning** > **Manual Execution Planning** . On the top right, click **Test Assignment**.

The **Test Assignment** view is the second view of the **Manual Execution Planning** page. Here you can organize the manual tests that are assigned to the selected testing cycle.

Testing Cycles

The **Testing Cycles** area lists all testing cycles of the current project. It is the central part of the **Manual Execution Planning** page and displays on both the **Test Selection** and on the **Test Assignment** view. The testing cycles are ordered chronologically.

Click **New Testing Cycle** on the top of the **Testing Cycles** area to create a new testing cycle. Click **Show/ Hide Testing Cycles** if you want to hide testing cycles. Hiding testing cycles helps you to keep the **Testing Cycles** area tidy and to enhance the performance. It is especially useful when you have lots of testing cycles.

In the header of a testing cycle, click to perform the following actions:

- **Edit Testing Cycle**
- **Edit Assigned Testers**
- **Edit Milestones**
- **Import Tests from Execution Plan**
- **Duplicate Testing Cycle**
- **Hide Testing Cycle**
- **Delete Testing Cycle**
- **Start Testing Cycle**
- **Finish Testing Cycle**

In a testing cycle, click on a manual tester to display the assigned tests in the **Assigned Tests** area.

Click on the header of a testing cycle to select it. The tests that are assigned to the testing cycle (but not to a specific manual tester) are listed in the **Assigned Tests** area.

If the **Assigned Tests** area is not displayed, click **Test Assignment** on the top right.

The testing cycle boxes show:

- The name of the testing cycle.
- The start and end dates.
- A burn-down chart that visualizes the testing progress. It shows how likely it is that all tests will be finished by the end of the testing cycle. Move your mouse over one of the bars to show the number of tests that are not completed.
- The percentage of the capacity that is covered. This percentage is calculated as follows: The sum of planned time of the assigned tests divided by the capacity sum of the manual testers. This percentage displays both for the testing cycle and each individual tester. If a testing cycle or a manual tester is

overloaded with tests, the green box turns into red. Move the mouse over this percentage to get detailed information.
- The number of assigned tests and the completed tests for both the testing cycle and each individual tester. Move the mouse over these numbers to get detailed information.
- The manual testers that are assigned to each testing cycle. Click on the number of the assigned testers to expand or collapse the detailed information.

Moving Tests from One Testing Cycle to Another

You can move tests from one testing cycle to another testing cycle. That might be useful if you cannot finish all tests in time and you want to move those tests to the next testing cycle.

To move tests from one testing cycle to another testing cycle:

1. In the menu, click **Execution Planning** > **Manual Execution Planning**. The **Manual Execution Planning** page displays.
2. Click **Test Assignment** on the top right. The **Manual Execution Planning** page switches into the **Test Assignment** view.
3. In the **Testing Cycles** area on the left side, click on the header of a testing cycle.
4. In the **Assigned Tests** area, click the test you want to move and drag it onto another testing cycle.

   You can select multiple tests with **Ctrl+Click** or **Shift+Click**.

Moving Tests from One Tester to Another

You can move tests from one manual tester to another with free capacity to distribute the workload within a testing cycle.

To move a test from one manual tester to another manual tester:

1. In the menu, click **Execution Planning** > **Manual Execution Planning**. The **Manual Execution Planning** page displays.
2. Click **Test Assignment** on the top right. The **Manual Execution Planning** page switches into the **Test Assignment** view.
3. In the **Testing Cycles** area on the left side, click on a manual tester. The tests that are assigned to the manual tester are shown in the **Assigned Tests** area.
4. Click the test you want to move and drag it onto another manual tester.

   You can select multiple tests with **CTRL + CLICK** or **SHIFT + CLICK**.

Removing Tests from Testing Cycles

To remove tests from a testing cycle:

1. In the menu, click **Execution Planning** > **Manual Execution Planning**. The **Manual Execution Planning** page displays.
2. Click **Test Assignment** on the top right. The **Manual Execution Planning** page switches into the **Test Assignment** view.
3. In the **Testing Cycles** area on the left side, click on the header of a testing cycle. The tests that are assigned to the testing cycle are shown in the **Assigned Tests** area.
4. Click to remove a test from the testing cycle.

   You can select multiple tests with **CTRL + CLICK** or **SHIFT + CLICK**.

Note: You cannot remove tests from a finished testing cycle. You can copy a test from a finished testing cycle by dragging it onto another testing cycle or tester.

Removing Tests from Manual Testers

To remove tests from a manual tester:

1. In the menu, click **Execution Planning** > **Manual Execution Planning**. The **Manual Execution Planning** page displays.
2. Click **Test Assignment** on the top right. The **Manual Execution Planning** page switches into the **Test Assignment** view.
3. In the **Testing Cycles** area on the left side, click on a manual tester. The tests that are assigned to the manual tester are shown in the **Assigned Tests** area.
4. You can remove tests from the testing cycle or remove them from just the manual tester but keep them in the testing cycle:
   - To remove a test from the manual tester and the testing cycle: click .
   - To remove a test from the manual tester but keep it in the testing cycle: click a test in the **Assigned Tests** area and drag it onto **No specific tester** in the **Testing Cycle**s area.

   You can select multiple tests with **CTRL + CLICK** or **SHIFT + CLICK**.

Note: You cannot remove tests from a manual tester who is assigned to a finished testing cycle. You can copy a test from a finished testing cycle by dragging it onto another testing cycle or tester.

Assigned Tests

The **Assigned Tests** area shows the assigned tests of the currently selected testing cycle or manual tester.

The caption of the **Assigned Tests** grid shows:

- The name of the currently selected testing cycle.
- The name of the currently selected tester.

You can perform following actions in the grid:

- To assign a manual test to a different testing cycle, drag the test onto the header of the testing cycle.
- To assign a manual test to a (different) manual tester, drag the test onto the tester in a testing cycle.
- Click on a column header's context menu trigger to sort, to group and to filter manual tests, to add or remove columns, and to reset filters or the view.
- Right-click on a manual test to show the test details, to specify configurations for the test, or to remove the test from the testing cycle.
- You can select multiple tests with **CTRL + CLICK** or **SHIFT + CLICK.**
- Click to remove a test from the testing cycle.
- Click to show the test details.
- Click to view the manual test results.
- Click to show the test in the **Tests Details View**.
- To remove a test from a manual tester but not from the testing cycle, drag the test to **No specific tester** in the testing cycle.
- To change the execution order, click the **Order** field, type in an order number, and press `Enter`.

  Note: You should assign tests from only one test container to a testing cycle. Otherwise, order numbers are not unique. If you want to assign tests of multiple test containers, you can group the tests by the **Test Container** column.

Note: If you apply a filter or a quality goal value in the **Filter Criteria** area, the tests in the **Assigned Tests** grid that do not match the filter are disabled.

Manual Configuration Testing

You can execute a manual test with different software and hardware configurations.

To assign configurations to a manual test:

1. In the menu, click **Execution Planning** > **Manual Execution Planning**. The **Manual Execution Planning** page displays.
2. Click **Test Assignment** on the top right. The **Manual Execution Planning** page switches into the **Test Assignment** view.
3. Right-click a test in the **Assigned Tests** area.

   You can select multiple tests with **CTRL + CLICK** or **SHIFT + CLICK**.
4. Click **Specify Configurations**. The **Specify Configurations** dialog box displays.
5. Optionally click **New Configuration** and enter a name.

   To edit and organize your configurations in greater detail, click **Execution Planning** > **Configurations**.
6. Check one or more configurations. For each test/configuration combination, an instance of the test is added to the **Assigned Tests** grid.

   Note: If you uncheck a configuration, the instance for this test/configuration combination will be removed from the currently selected tester. However, instances assigned to other testers will not be removed.
7. Click **OK**.

You can assign the new test instances to different manual testers and testing cycles.

Walkthrough

This walkthrough shows you features of **Manual Execution Planning** using an example. The assumptions for the example include:

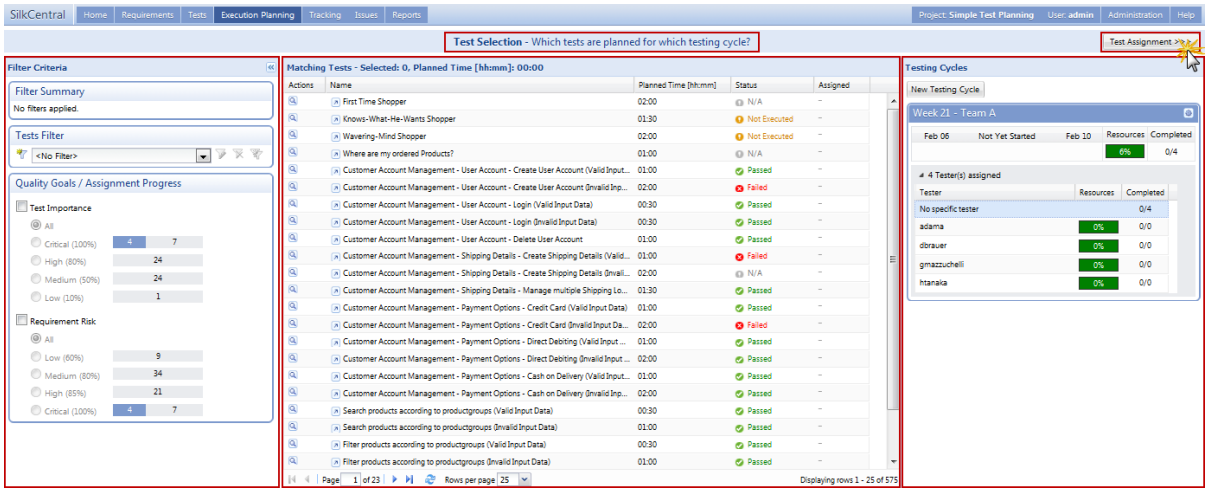
- The requirements are fully documented and categorized according to a `Risk` property.
- 575 manual tests are fully documented, assigned to requirements, and categorized according to an `Importance` attribute which defines the necessity for executing a specific test.
- Quality goals, which are also called *project exit criteria*, have been defined based on the requirements property `Risk` and the test attribute `Importance`. These quality goals specify the levels of testing required.
- The only tests to plan are the ones that best fulfill the quality goals.

Overview (Walkthrough)

The **Manual Execution Planning** page consists of four areas presented on two screens. On the first screen, the **Test Selection** screen, you can select and schedule your tests for a testing cycle. On the second screen, the **Test Assignment** screen, you can assign the tests of the selected testing cycle to the testers who will execute them.

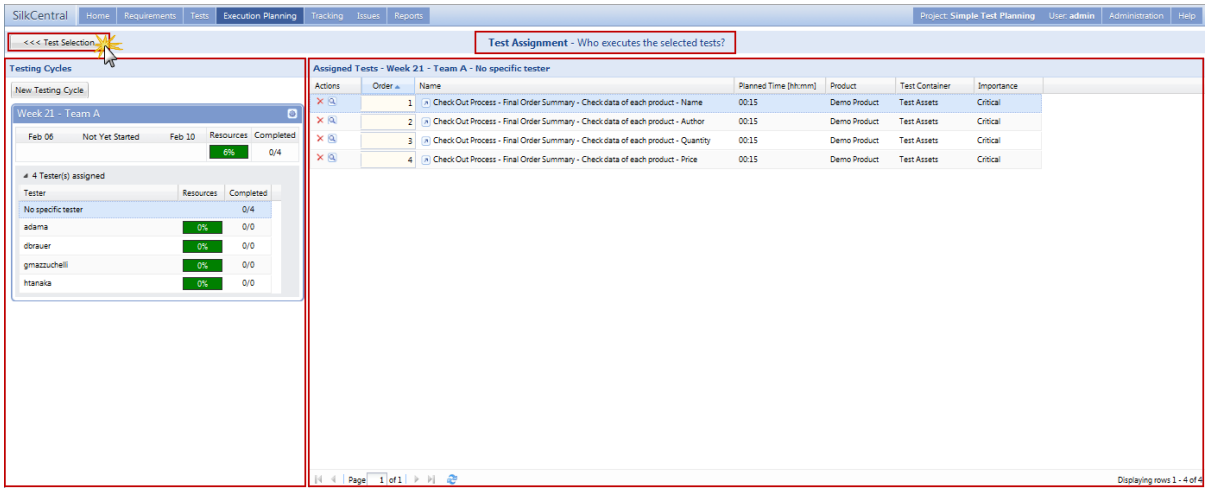
The **Test Selection** screen is divided into three areas:

- The **Filter Criteria** area on the left side. With the filter capabilities, you can narrow down the tests shown in the next area.
- The **Matching Tests** area in the middle. This list shows all available tests. When you apply filters, just the filtered tests are shown.
- The **Testing Cycles** area on the right side. Here you can assign tests from the list in the middle to a certain testing cycle, which is a defined time period.


SilkCentral
Test Selection - Which tests are planned for which testing cycle?
Test Assignment >>>
Filter Criteria
Matching Tests - Selected: 0, Planned Time [hh:mm]: 00:00
Testing Cycles

To access the **Test Assignment** screen, click **Test Assignment >>>** on the top right. This screen is divided into two areas:

- The **Testing Cycles** area on the left side. This is the same area as on the **Test Selection** screen, it is shown on both screens.
- The **Assigned Tests** area on the right side. This list shows the tests, which have been added to the currently selected testing cycle. Here you can drag the tests from the list to the **Testing Cycles** area and drop them on a tester.


SilkCentral
<<< Test Selection
Test Assignment - Who executes the selected tests?
Testing Cycles
Assigned Tests - Week 21 - Team A - No specific tester

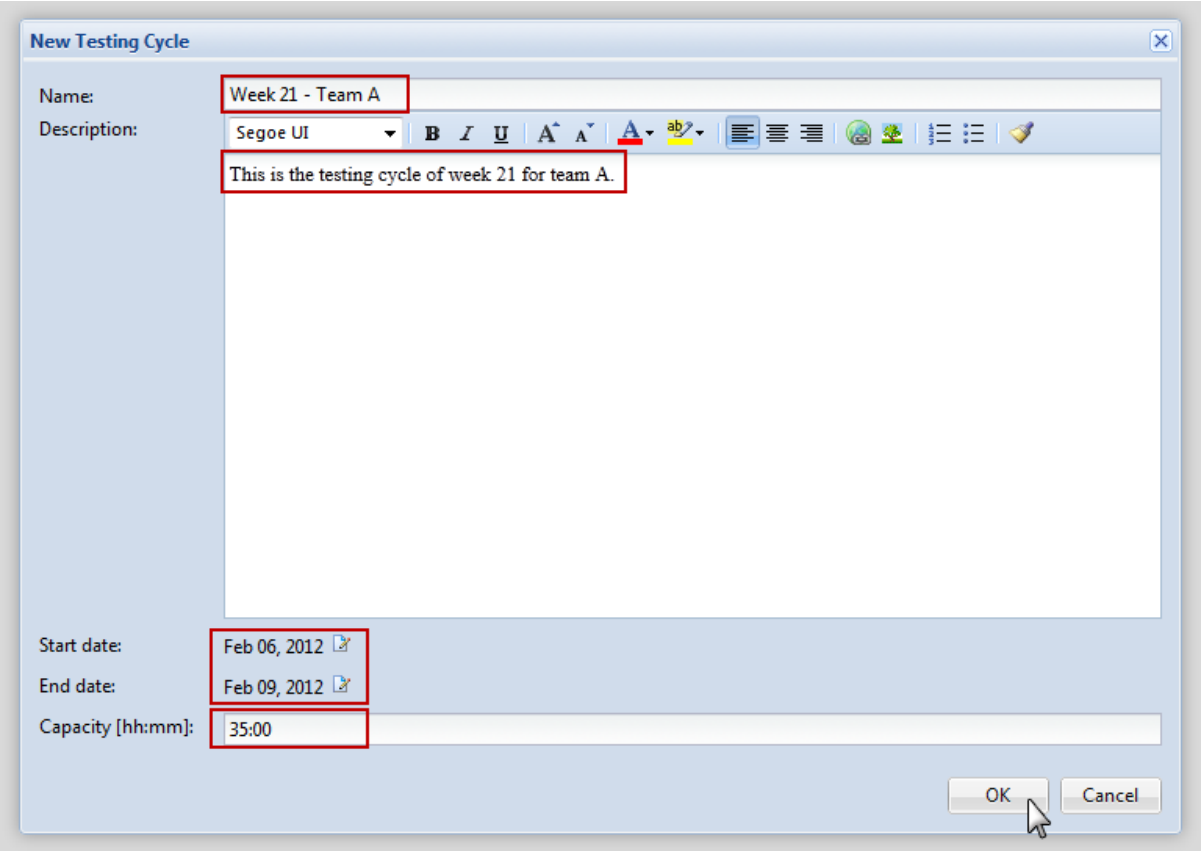
Creating a Testing Cycle (Walkthrough)

The first step is to create a testing cycle. A testing cycle is a defined period in time consisting of a start date, an end date, and a list of manual testers. We will name our testing cycle `Week 21 - Team A`.

1. In the menu, click **Execution Planning** > **Manual Execution Planning**.
2. In the **Testing Cycles** area on the right side, click **New Testing Cycle.** The **New Testing Cycle** box appears.
3. Enter a name for the testing cycle, in our case `Week 21 - Team A`.
4. Optionally enter a description.
5. Click next to **Start date** to set the start date of the testing cycle.
6. Click next to **End date** to set the end date of the testing cycle.
7. In `hh:mm` format, enter the amount of time that you want to provide for this testing cycle (**Capacity**), in our case, we entered `35:00`.

8. Click **OK**.

Our testing cycle now appears in the **Testing Cycles** area. It shows that currently no testers are assigned. The next step is to assign testers.

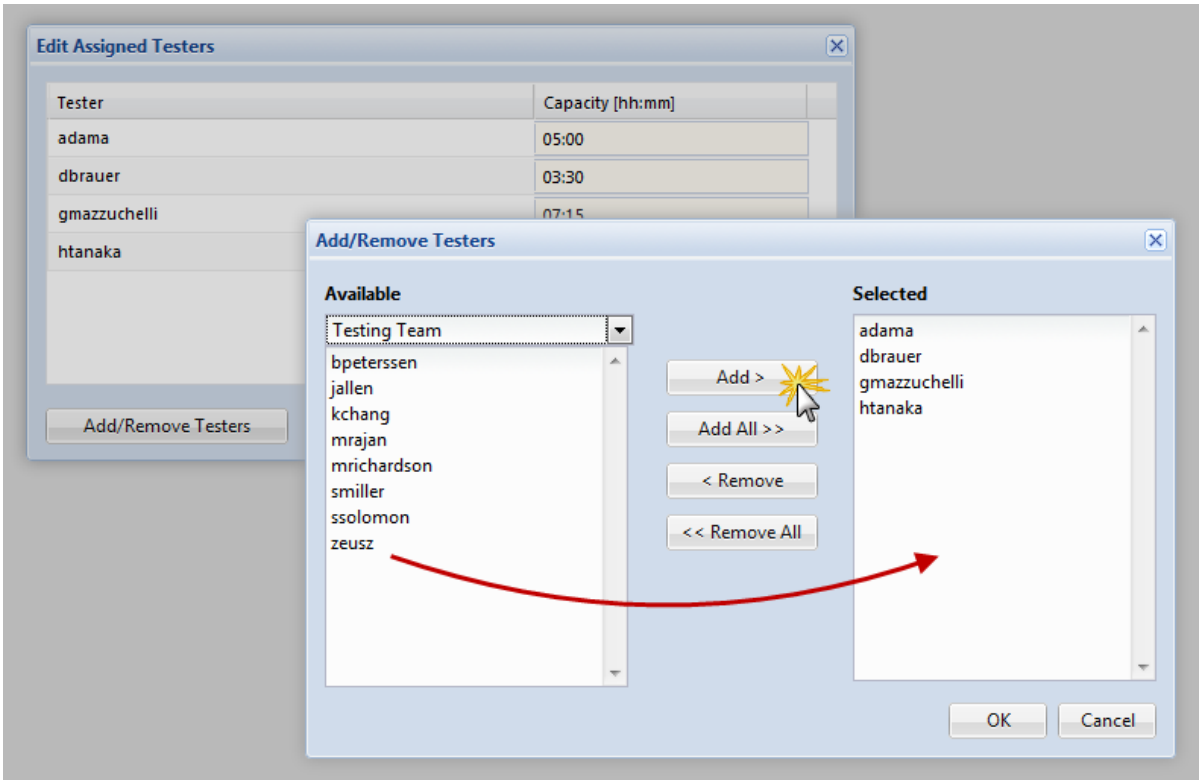


Adding Manual Testers (Walkthrough)

The next step is to add manual testers to our testing cycle. We are also going to define the capacity each manual tester has for this testing cycle.

1. In the header of our testing cycle `Week 21 - Team A`, click > **Edit Assigned Testers**. The **Edit Assigned Testers** dialog box appears.
2. Click **Add/Remove Testers**. The **Add/Remove Testers** dialog box appears.
3. Select a user group from the **Available** list.
4. Select one or more users from the user group in the **Available** list.
5. Click **Add** or **Add All** to add users to the **Selected** list.
6. Click **OK**. The users are now added to the list in the **Edit Assigned Testers** dialog box.
7. For each user that was added, provide a capacity for the testing cycle in the **Capacity** field using the `hh:mm` format.
8. Click **Close**.

Now our testing cycle shows the available resources, both for the whole testing cycle as well as for each manual tester. A burn-down chart displays the assigned tests that are not yet completed. After we have created our testing cycle and added manual testers, we can determine which tests need to be done in the next step.

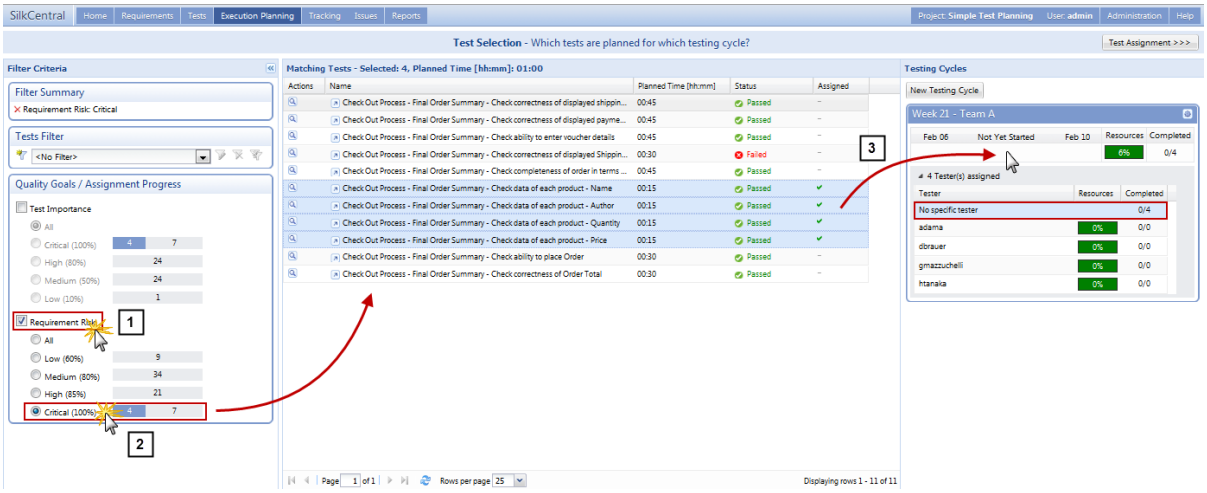


Selecting Tests and Scheduling (Walkthrough)

This topic describes how to assign tests to our testing cycle. The goal is to select those tests that best cover the defined quality goals. One of the quality goals is based on the requirement risk. The typical practice is to test things with high risk first.

1. In the **Filter Criteria** area on the left side, under **Quality Goals**, check the **Requirement Risk** check box. The list of **Matching Tests** is narrowed down to the tests that are critical.
2. In the **Matching Tests** area, right click on a column to sort, filter or group tests. That helps to select the tests that should be scheduled.
3. Select one or more tests, drag them to the **Testing Cycle** area on the right side and drop them to our testing cycle. When adding tests to a testing cycle, the indicator for already used resources is updated. Move the mouse over this indicator for detailed information about the overall capacity, the planned time, and the time left.
4. After scheduling all tests with a critical risk, schedule those with a high risk. After that, schedule those with a medium risk, and so on.

The tests assigned to our testing cycle have moved to the **No specific tester** row. In the next step, we will assign tests to manual testers.

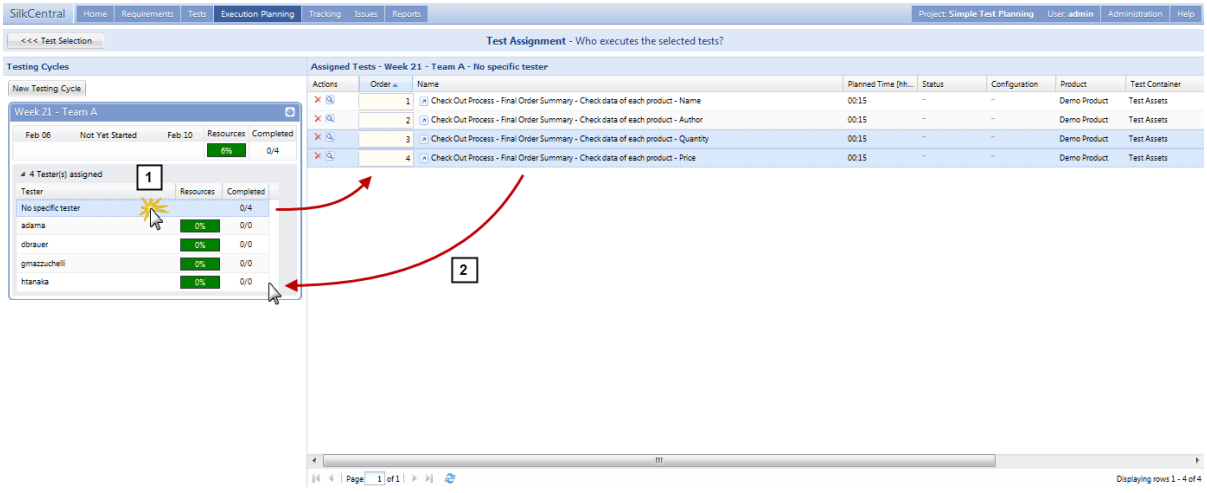


Assigning Tests to Manual Testers (Walkthrough)

Now we are going to assign the tests in our testing cycle to manual testers.

1. Click **Test Assignment >>>** on the top right. The **Test Assignment** screen appears.
2. In the **Testing Cycles** area on the left side, click on the **No specific tester** row in our testing cycle. All tests that are not assigned to a tester appear in the **Assigned Tests** area on the right side.
3. Select one or more tests, drag them to the **Testing Cycles** area on the left side and drop them to a manual tester. When assigning tests to a manual tester, the resource indicator is updated. Move the mouse over this indicator to see detailed information about the capacity, the planned time, and the time left.
4. When you are finished assigning tests to manual testers, click > **Start Testing Cycle** to start the tests.

When the testing cycle is started, each manual tester is informed through email about the tests that are assigned. You can add a test inbox, (**Manual Tests Assigned to Me**), to your personal dashboard. All the tests that are assigned to you are listed there.


SilkCentral
Test Assignment - Who executes the selected tests?
Testing Cycles
Assigned Tests - Week 21 - Team A - No specific tester
1
2

Configuration Testing

Configuration testing is the process of testing a system with each of the supported software and hardware configurations.

The **Execution** area supports configuration testing by allowing reuse of the assigned tests. You can create configuration suites with a set of assigned tests, and all execution plans that you add to the configuration

suite will also have the set of tests assigned. You can also create configuration suites from existing execution plans and copy and paste or cut and paste execution plans in the **Execution** tree into a configuration suite. Silk Central enables you to add or remove parameters, keywords, and manual testers to or from the configurations. When you create a configuration suite out of an existing execution plan, all the results of the execution plan are preserved in the configuration suite. If you copy-paste an execution plan into an existing configuration-suite, these results are not preserved.

Each execution plan in the configuration suite is displayed in an editable grid. You can view the execution plans or configurations that contain a specific test in the **Properties** tab of the test. You can also view the execution plans or configurations that are associated with a specific requirement in the **Assigned Tests** tab of the requirement.

To define configurations for automated tests, use the **Configurations Suite Configurations** page. To define configurations for manual tests use the **Configurations** page.

Creating a Configuration Suite

To create a configuration suite:

1. In the menu, click **Execution Planning** > **Details View** or **Execution Planning** > **Document View**.
2. Right-click the root node or a folder in the **Execution** tree and select **New Child Configuration Suite** or click in the toolbar. The **New Configuration Suite** dialog box displays.
3. Type a **Name** and **Description** for the new configuration suite.
4. Select a **Test Container** from the list box.
5. Select a **Version** and **Build** from the list boxes, or check the **Read from Build Information File** check box to read the version and build from a file.
6. *Optional:* In the **Source Control Label** field you can specify that earlier versions of automation files, instead of the latest versions, are fetched from the source control system.

   Note: The **Source Control Label** property is only enabled if the associated test container uses a source control profile that supports versioning.
7. Click **OK**.

Creating a Configuration Suite from an Execution Plan

To create a configuration suite from an existing execution plan:

1. In the menu, click **Execution Planning** > **Details View**.
2. Right-click the execution plan, from which you want to create a configuration suite, in the **Execution** tree and select **Convert to Configuration Suite**. Silk Central creates a new configuration-suite node, with the same name as the selected execution plan, in the **Execution** tree and adds the execution plan as a configuration sub-node to the configuration suite.

When you create a configuration suite out of an existing execution plan, all the results of the execution plan are preserved in the configuration suite. If you copy-paste an execution plan into an existing configuration-suite, these results are not preserved.

Adding Parameters to a Configuration

To add a predefined parameter to a configuration:

1. In the menu, click **Execution Planning** > **Details View**.
2. In the **Execution** tree, select the configuration node to which you want to add a parameter.
3. Click the **Configurations** tab.
4. Click **Add/Remove Parameters**. The **Add/Remove Parameters** dialog box opens. The **Assigned parameters** list box on the right side of the dialog box lists all of the parameters that are defined for the configuration.

5. Select parameters in the **Select or enter parameters** list box that reflect your execution environment requirements.

   Use **CTRL + CLICK** or **SHIFT + CLICK** to select multiple parameters using standard browser multi-select functions.
6. To add any of the parameters listed in the **Select or enter parameters** list box, select the parameter and click **>**.
7. To create a new parameter, type the name of the parameter in the **Enter parameters** text box, and press **Enter** or click **>**.

   Tip: The **Enter Parameters** text box is auto-complete enabled. When you enter alphanumeric characters into this field, the field is dynamically updated with an existing parameter that matches the entered characters. The text box is disabled when multiple parameters are selected in the **Select parameters** or **Assigned parameters** list boxes.
8. Click **OK**. The **Add/Remove Parameters** dialog box closes and a new column is added to the grid for each new parameter.

Removing Parameters from a Configuration

To remove a predefined parameter from a configuration:

1. In the menu, click **Execution Planning** > **Details View**.
2. In the **Execution** tree, select the configuration node from which you want to remove a parameter.
3. Click the **Configurations** tab.
4. Click **Add/Remove Parameters**. The **Add/Remove Parameters** dialog box opens. The list box on the right side of the dialog box lists all of the parameters that are defined for the configuration.
5. To remove a parameter from the list box, select the parameter and click **<**.
6. Click **OK**. The **Add/Remove Parameters** dialog box closes and the column of the removed parameter is removed from the grid.

Assigning Keywords to a Configuration

To assign keywords to a configuration:

1. In the menu, click **Execution Planning** > **Details View**.
2. In the **Execution Plans** tree, select the configuration suite that you want to edit.
3. Click the **Configurations** tab.
4. Click into the **Keywords** column of the configuration that you want to add a keyword to. The **Assign Keywords** dialog box opens.
5. Select keywords in the **Select keywords** list box that reflect your execution environment requirements.

   Use **CTRL + CLICK** or **SHIFT + CLICK** to select multiple keywords using standard browser multi-select functions.

   Tip: The **Enter keywords** text box is auto-complete enabled. When you enter alphanumeric characters into this field, the field is dynamically updated with an existing keyword that matches the entered characters. The text box is disabled when multiple keywords are selected in the **Select keywords** or **Assigned keywords** list boxes.

   Tip: For automated execution plans, if you only have a few execution servers and do not require hardware provisioning, it might be enough to use only the default, reserved keywords that are created for each execution server. In such cases, it is not necessary that you select additional keywords.
6. Click **>** to move the keyword into the **Assigned keywords** list box.

   Note: For automated execution plans, the execution servers that match the assigned keywords are listed below in the dynamically-updated **Matching execution servers** list box. This list

updates each time you add or remove a keyword. Click on the name of an execution server in the list to access the execution servers in **Administration** > **Execution Servers** .

7. Click **OK** to save the keywords and close the **Assign Keywords** dialog box.

Removing Keywords from a Configuration

To remove keyword assignments from a configuration:

1. In the menu, click **Execution Planning** > **Details View**.
2. In the **Execution Plans** tree, select the configuration suite that you want to edit.
3. Click the **Configurations** tab.
4. Click into the **Keywords** column of the configuration that you want to remove a keyword from. The **Assign Keywords** dialog box opens.
5. Select the no longer needed keywords in the **Assigned keywords** list.

   Use **Ctrl+Click** or **Shift-Click** to select multiple keywords.
6. Click **<** to remove the keyword assignments.
7. Click **OK** to save the keywords and close the **Assign Keywords** dialog box.

Note: Keywords that are not in use anymore are automatically deleted from the system.

Adding Manual Testers to Configurations

For configurations that include manual tests, the **Configurations** page enables you to assign users as manual testers to a selected configuration. You can assign multiple manual testers to the configuration.

To assign a manual tester to a configuration:

1. In the menu, click **Execution Planning** > **Details View**.
2. In the **Execution Plans** tree, select the configuration suite that you want to edit.
3. Click the **Configurations** tab.
4. Click into the **Manual Testers** column of the configuration that you want to add a manual tester to. The **Manual Testers** dialog box opens.
5. In the **Available** list box, select the user group of which the tester is a member. The list box is populated with all members of the user group.
6. Select the name of the user you want to assign as a manual tester.
7. Click **Add** to add the user to the **Selected** list box; or click **Add All** to add all of the group's members and testers.
8. Click **OK** to close the **Manual Testers** dialog box.

Removing a Tester Assignment from a Configuration

To remove a tester assignment from a configuration:

1. In the menu, click **Execution Planning** > **Details View**.
2. Select the configuration node from which you want to remove a tester assignment.
3. Click the **Configurations** tab.
4. Click into the **Manual Testers** column of the configuration that you want to remove a manual tester from. The **Manual Testers** dialog box opens.
5. From the **Selected** list, select the name of the assigned user that you want to remove.
6. Click **Remove** to remove the user from the **Selected** list; or click **Remove All** to remove all tester assignments.
7. Click **OK** to close the **Manual Testers** dialog box.

Configurations Suite Configurations Page

To access this page, click **Execution Planning** > **Details View** > **<Configuration Suite>** > **Configurations**.

The **Configurations** tab displays the configurations that are included in a configuration suite. The grid provides data for the automated generation of child execution plans.

Each configuration that you add to the grid results in a new execution plan, which is executed with the configuration suite.

To define a new configuration, click **New Configuration**. To add or remove a parameter, click **Add/Remove Parameters**.

For each listed configuration, the page displays the following columns:

Column	Description
Actions	• Click ✕ to delete the configuration. • Click to duplicate the configuration.
Name	The name of the configuration. Click on the name to change it.
Keywords	The list of the execution keywords that are assigned to the configuration. Click on the link to change the list.
Manual Testers	The list of the manual testers that are assigned to the configuration. Click on the link to change the list.
Parameters	The grid can have multiple parameter columns. Click **Add/Remove Parameters** to add or remove parameters from the grid. To add a value to a parameter, click the field and type in the value.

Configurations Page

To access this page, click **Execution Planning** > **Configurations**.

The **Configurations** page shows a list of the defined configurations in a grid. You can use these configurations for manual tests only. To define configurations for automated tests, see *Configurations Suite Configurations Page*.

To define a new configuration, click **New Configuration**. To add or remove a parameter, click **Add/Remove Parameters**.

For each listed configuration, the page displays the following columns:

Column	Description
Actions	• Click ✕ to delete the configuration. • Click to duplicate the configuration.
Name	The name of the configuration. Click on the name to change it.
Keywords	The list of the execution keywords that are assigned to the configuration. Click on the link to change the list.
Parameters	The grid can have multiple parameter columns. Click **Add/Remove Parameters** to add or remove parameters

Column	Description
	from the grid. To add a value to a parameter, click the field and type in the value.

Working with the Execution Plans Tree

Execution Planning > **Details View**

Folders, execution plans, configuration suites, and testing cycles are displayed, organized, and maintained through a hierarchical tree structure, the **Execution Plans** tree. You can use any number of hierarchy levels within the tree.

Note: When the **Execution Plans** tree includes more elements than can be displayed at once without impacting response time, the elements are displayed in increments. Page number links at the lower part of the tree allow you to browse through the elements included on the tree one page at a time. To display all elements as a single list, click the **[All]** link.

Expanding or Collapsing the Execution Plans Tree

You can consolidate levels of the **Execution Plans** tree or display all levels of the hierarchy based on your viewing needs.

To collapse or expand levels of the **Execution Plans** tree:

1. In the menu, click **Execution Planning** > **Details View**.
2. Select a folder in the **Execution Plans** tree and continue with one of the following options:
   - Click ▷ to the left of the name of the folder to expand the folder.
   - Click ◢ to the left of the name of the folder to collapse the folder.
   - Right-click on the folder and select **Expand** or **Collapse**.

Editing Elements of the Execution Plans Tree

To edit an existing execution plan element:

1. In the menu, click **Execution Planning** > **Details View**.
2. In the **Execution Plans** tree, select the execution plan, folder, or configuration suite you want to edit.
3. Click on the toolbar or right-click the element and select **Edit**. A dialog box displays.
4. Edit the element by modifying the criteria in the dialog box.

   For execution plans, if there are no runs and no tests assigned to the execution plan, you can choose an alternative test container for the execution plan from the **Test Container** list box.
5. Click **OK** to save the edited element.

Copying Elements of the Execution Plans Tree

To copy and paste an execution plan, a folder, or a configuration suite:

1. In the menu, click **Execution Planning** > **Details View**.
2. In the **Execution Plans** tree, select the element that you want to copy.
3. Click on the toolbar or right-click the element and select **Copy** .
4. Select the target folder where the element is to be pasted.
5. Click on the toolbar or right-click the target node and select **Paste**. The **Execution Plans** tree is updated with a copy of the pasted element. All assigned tests, filters, and scheduling parameters are copied along with the element.

Deleting Elements of the Execution Plans Tree

To delete an execution plan, a folder, or a configuration suite:

1. In the menu, click **Execution Planning** > **Details View**.
2. In the **Execution Plans** tree, select the element that you want to delete.
3. Click ✕ on the toolbar or right-click the element node and select **Delete**.
4. Click **Yes** on the deletion confirmation dialog box to remove the element from the **Execution Plans** tree.

When deleting an element of the **Execution Plans** tree, the run results of the assigned tests are also deleted. The test run results may still appear in reports, because they are stored in the database, which is not immediately updated after the deletion of the element.

Filtering the Execution Plans Tree

Follow the steps below to filter the **Execution Plans** tree so that only the selected node and child nodes are visible. This is useful if you want to print a sub-set of execution plans to a PDF.

1. Create a custom filter that defines the execution plans that you want to view.
2. Select a folder or configuration suite in the tree view, right click and select **Filter Subtree**.

Printing Assigned Manual Tests

For each execution plan in the **Execution Plans** tree, you can print a document that includes information about all manual tests that are assigned to the execution plan. You can print this document to PDF or a local printer.

To print information about all manual tests that are assigned to an execution plan:

1. In the menu, click **Execution Planning** > **Details View**.
2. In the **Execution Plans** tree, right click the execution plan and click **Print Assigned Manual Tests**. The **Manual Test Document** dialog box opens.
3. To print the assigned manual test information to a local printer, click **Print**. To save the information as a PDF document, click **Download as PDF**.
4. Click **Close** to close the **Manual Test Document** dialog box.

Execution Plan Properties Page

Execution Planning > **Details View** > **<Execution Tree Element>** > **Properties**

The **Properties** page lists basic properties that are relevant to the selected project, folder, execution plan, or configuration suite.

Property	Description
Execution Plan Name/Configuration Suite Name/ Folder Name	Name of the element in the **Execution Plans** tree.
Execution Plan ID/Configuration Suite ID/Folder ID	Database identifier of the element.
Description	Description of the element. **Note:** Silk Central supports HTML formatting and cutting and pasting of HTML content for **Description** text boxes.

Property	Description
Test Container	The test container with witch the execution plan or configuration suite is associated. Click to access the test container in the **Tests** area.
Version	Version that is used when the execution plan is executed.
Build	Build that is used when the execution plan is executed.
Priority	For automated execution plans, when more than one execution plan is queued but only one execution server is available, the **Priority** determines which execution plan is executed first.
Silk Test Classic AUT Host NameSource Control Label	Hostname of the application under test. For Silk Test Classic execution plans only.
Tests	The tests associated with this execution plan or configuration suite.
Source Control Label	Not existing for configuration suites. In the **Source Control Label** text box you can optionally specify that the execution plan is of an earlier version than the latest version. The label must refer to a version in the source control system that the test container is associated with. If this text box is left blank, the latest version of the execution plan will be fetched. The **Source Control Label** property is only enabled if the associated test container uses a source control profile that supports versioning. Make sure to have enough free disk space on the execution server or servers when working with multiple versions of source files. Each version will be saved in its own folder on every execution server.
Status of last run	The cumulated test statuses of the latest run of the execution plan, or the cumulated test statuses of all contained execution plans, for a folder or configuration suite.
Last Execution	Last time an execution of the element was started.
Duration	Duration of the latest run of an execution plan, or in case of a folder or configuration suite, the cumulated durations of the latest runs of all contained execution plans. In the simplest case, automated tests on a single execution server or only manual tests, the duration is the time displayed for the latest run on the **Runs** page. If the last execution involved both automated and manual tests, only the automated or manual tests will be considered, depending on which test was executed later. If the execution plan contains multiple tests, the duration is measured from the time when the first test begins executing and ends when the last test completes execution. This includes the overhead time, which is needed for stopping/starting tests between executions.
Next Execution	Next time this element will be executed.

Property	Description
Created On	Date and time the element was created.
Created By	Name of the user who created the element.
Changed On	Date and time the element was last changed.
Changed By	Name of the user who last changed element.

Testing Cycle Properties Page

Execution Planning > **Details View** > **<Testing Cycle>** > **Properties**

The **Testing Cycles Properties** page is available when you select any testing cycle from the **Execution Plans** tree and then click **Properties**.

Click **Edit Properties** to display the **Edit Testing Cycle** dialog box where you can edit the **Name**, **Description**, and **Planned Time** of the testing cycle.

The following table displays the available testing cycle properties.

Property	Description
Testing Cycle Name	Name of the testing cycle. Edit this value in the **Edit Testing Cycle** dialog box.
Testing Cycle ID	Unique ID of the testing cycle.
Description	Description of the testing cycle. Edit this value in the **Edit Testing Cycle** dialog box.
Status of Last Run	Status is an aggregate of the last run of all test statuses within the execution plans of the testing cycle: **Passed**, **Failed**, **Not Executed**, or **N/A**.
Start Time of Last Run	Start time of the last run.
Testing Cycle Start Date	The scheduled start date for the testing cycle.
Testing Cycle End Date	The scheduled end date for the testing cycle.
Capacity [hh:mm]	Amount of time that you expect the testing cycle to take. Edit this value in the **Edit Testing Cycle** dialog box. If you assign manual testers to the testing cycle, the value for **Capacity** is the sum of the **Capacity** for each manual tester.
Planned Time [hh:mm]	Cumulative planned time of all manual tests within all assigned execution plans of the testing cycle.
Time Left [hh:mm]	This is the remaining time available after subtracting **Planned Time** from **Capacity**.
Created On	Date that the testing cycle was created.
Created By	User that created the testing cycle.
Changed On	Date that the testing cycle was last modified.
Changed By	User that last modified the testing cycle.

Assigned Manual Testers

This section lists all of the manual testers included in the cycle.

Property	Description
Tester	Name of the tester.

Property	Description
Capacity	Enter the amount of time that this tester is available for the testing cycle in hh:mm format. The sum of all capacity values for each tester will be the testing cycle **Capacity** value.
Add/Remove Testers	Click to display the **Manual Testers** dialog box which you use to add testers to the testing cycle.

Managing Execution Plans, Folders, and Configuration Suites

An execution plan is a collection of assigned tests that are stored in a single test container. An execution plan can be run at configurable schedules and deployed on specified execution servers.

The process of adding and editing execution plans is the same for both automated execution plans and manual execution plans.

Creating Execution Plans

To create an execution plan:

1. In the menu, click **Execution Planning** > **Details View**.
2. Select a folder or the project node in the **Execution Plans** tree.
3. Click (**New Child Execution Plan**) on the toolbar or right-click the folder, testing cycle, or node and click **New Child Execution Plan**. The **New Execution Plan** dialog box appears.
4. Type a name and description for the execution plan.

   Note: Silk Central supports HTML formatting and cutting and pasting of HTML content for **Description** text boxes.
5. Select a test container from the **Test Container** list.

   Note: You can assign only one test container to an execution plan. Only tests from this test container can be executed.

   The latest version and build that are defined within the product that the container belongs to are populated automatically in the **Version** and **Build** lists.
6. Select a product **Version** and **Build** from the lists.

   These are used when a new run of this execution plan is started. Alternatively, you can check the **Read from Build Information File** check box. In this casethe version and build are read from the build information file on the application server at the beginning of each run. If a build information file is available on the execution server, this file is used by default for the test run, overriding the settings on the **New Execution Plan** dialog box.
7. Select a **Priority** for the execution plan from the list.

   The priority parameter specifies the lowest priority that is considered in the data.
8. *Optional:* In the **Source Control Label** field you can specify that earlier versions of automation files, instead of the latest versions, are fetched from the source control system.

   Note: The **Source Control Label** property is only enabled if the associated test container uses a source control profile that supports versioning.
9. Click **OK** to update the **Execution** tree with the newly created execution plan.

Creating an Execution Plan in Grid View

To create an execution plan in **Grid View**:

1. In the menu, click **Tests** > **Grid View** .
2. Select the tests you want to assign to your execution plan, by using the multi-select feature of the **Grid View**.

3. Right-click the tests and choose **Create Execution Plan**. The **New Execution Plan** dialog box displays.
4. Enter the specifications of your new execution plan.

Note: All selected tests must be in the same container. If not, the execution plan is not created and an error message displays. The test container is preselected in the **New Execution Plan** dialog box and can not be altered.

Test Status Calculation

Each execution plan has one of the following status conditions:

Status	Condition
`Passed`	All considered test execution plans have the status `Passed`.
`Failed`	At least one considered test execution plan has the status `Failed`, but none of the execution plans has the status `Not Executed`.
`Not Executed`	At least one considered test has the status `Not Executed`.

A test gets its status from the result of the latest execution plan run. If you manually change the status of the latest execution plan run, the test status changes also.

Note: If the latest execution plan run is deleted, the status of the test resets to the status of the latest existing execution plan run. If the deleted execution plan run was the only existing execution plan run, the status of the test is set to `N/A`, as if the test was newly created.

Execution Plan Parameters

To apply a specific configuration to an execution plan, you can override the parameters that you have assigned to a test in the **Parameters** page of the execution plan. For additional information on test parameters, see *Test Parameters*.

Creating an Execution Plan Parameter

To add a new parameter to an execution plan:

1. In the menu, click **Execution Planning** > **Details View**.
2. In the **Execution** tree, select the execution plan to which you want to add a new parameter.
3. Click the **Parameters** tab.
4. Click **New Execution Plan Parameter**. The **New Execution Plan Parameter** dialog box displays.
5. Type the **Name** and **Value** for the new parameter into the corresponding text boxes.
6. Click **Save** to add the parameter to the execution plan.

Note: You cannot create execution plan parameters with the same name as an existing test parameter, which is included in the execution plan.

Overriding a Test Parameter

If multiple parameters of different types but with the same name exist in tests, you can override only one of them. Only the values of parameters with the same type and name are replaced with the overriding value during execution.

To override a test parameter in an execution plan:

1. In the menu, click **Execution Planning** > **Details View**.
2. In the **Execution** tree, select the execution plan in which you want to override a test parameter.
3. Click the **Parameters** tab.

4. In the **Actions** column of the parameter that you want to override, click . The **Set Execution Plan Parameter Value** dialog box displays.
5. Type the new **Value** into the text box.
6. Click **OK**.

Note: Click in the **Actions** column of the parameter to undo the override.

Removing an Execution Plan Parameter

Note: You cannot remove test parameters in an execution plan. You can only remove execution plan parameters.

To remove an execution plan parameter:

1. In the menu, click **Execution Planning** > **Details View**.
2. In the **Execution** tree, select the execution plan from which you want to add a new parameter.
3. Click the **Parameters** tab.
4. Click .

Execution Parameters Page

Execution Planning > **Details View** > **<Execution Plan>** > **Parameters**

The **Parameters** page displays the parameters of all tests that are assigned to the execution plan. You can override the parameters of the tests for the execution plan. For configuration testing, you can create multiple execution plans that include the same tests and you can then define different configurations in the **Parameters** page. Parameters from different tests that have the same name and type are displayed only once in the page. If multiple parameters from different tests have the same name, you can only override one of these parameters.

Click **New Execution Plan Parameter** to define a new execution plan parameter that is used for the execution of all tests that are included in the execution plan. New execution plan parameters are always of the type string and you cannot define a different type.

The page displays the following columns for each parameter:

Column	Description
Actions	Actions you can perform on the parameter. Click to edit the parameter value, or click to undo your changes.
Name	Name of the parameter.
Type	A parameter can have one of the following types: • String • Number • Float • Boolean • Password • Character
Value	The parameter value.

Setup and Cleanup Tests

The pre-test setup and post-test cleanup functionality of Silk Central enables you to define a setup test and a cleanup test for each execution plan. Setup tests are typically built upon scripts or manual procedures

that prepare testing environments in anticipation of tests. Cleanup tests typically include scripts or manual procedures that restore test environments to their original state following tests. When setup tests are aborted, regular tests do not execute, however cleanup tests do execute to restore the testing environment to its original state.

You must create your setup and cleanup tests before you can assign them to execution plans. Any test can serve as a setup or cleanup test, except parent tests of multiple data-driven test instances. They require no special configuration and can be either automated or manual. The only requirement is that they perform the required setup and cleanup processes within your test environment. In the case of automated tests these are scripts that perform required setup and cleanup tasks. In the case of manual tests, these are manual setup and cleanup tasks.

Note: The challenge in executing setup and cleanup tests is preventing their results from being aggregated with the results of the regular tests that they support. Silk Central addresses this concern by running setup and cleanup tests, both automated and manual, in independent execution plans, thereby isolating actual test results from incidental performance fluctuations that may be caused by setup and cleanup tests.

Combining Automated and Manual Tests

Silk Central supports exeuction plans that include combinations of automated tests and manual tests. For such execution plans, Silk Central withholds execution of regular tests, both automated and manual, until setup tests are complete. Silk Central also ensures that all regular tests are complete before cleanup tests are run.

When manual tests are combined with automated tests, automated tests, on all execution servers, do not begin until the setup processes are complete. In the case of manual setup tests, regular automated tests begin only after manual setup routines are complete.

Configuring Setup and Cleanup Executions

To define a test as a setup or cleanup test:

1. In the menu, click **Execution Planning** > **Details View**.
2. Click the execution plan for which you want to configure a setup or cleanup test.
3. Click the **Setup/Cleanup** tab.
4. Choose between a setup or cleanup test:
   - To define a setup test, click **Edit** in the **Setup Test** section. The **Edit Setup Test** dialog box appears.
   - To define a cleanup test, click **Edit** in the **Cleanup Test** section. The **Edit Cleanup Test** dialog box appears.
5. Select a test in the **Tests** tree.
6. Click **OK**.

The configured test displays in the corresponding section of the **Setup/Cleanup** page.

Execution Setup/Cleanup Page

Execution Planning > **Details View** > **<Execution Plan>** > **Setup/Cleanup**

Note: This page is not displayed for execution plans that are assigned to a testing cycle.

The **Setup/Cleanup** page lists the setup and cleanup tests that are defined for this execution plan.

Note: When failed tests are rerun, the corresponding setup/cleanup routines are also rerun. Setup/cleanup tests are not run with **Try Run** test runs because such executions do not rely on execution plans.

Setup Test

In the **Setup Test** section, the page displays the following items:

Item	Description
Actions	**Delete** and **View Description**.
Test	Type and name of the configured setup test.
Edit	Opens the **Edit Setup Test** dialog box where you can select a setup test. You cannot assign a test to the same execution plan as both a setup test and a regular or cleanup test. Assigned tests can come from any test container within your project. It is therefore possible to assign tests that have associated products and source control profiles that vary from their host execution plans.

Cleanup Test

In the **Cleanup Test** section, the page displays the following items:

Item	Description
Actions	**Delete** and **View Description**.
Test	Type and name of the configured cleanup test.
Edit	Opens the **Edit Cleanup Test** dialog box where you can select a cleanup test. You cannot assign a test to the same execution plan as both a setup test and a regular or cleanup test. Assigned tests can come from any test container within your project. It is therefore possible to assign tests that have associated products and source control profiles that vary from their host execution plans.

Configuring Deployment Environments

Adding a Silk Test Classic AUT Host

For execution plans that run Silk Test Classic tests, you may have a setup where the Silk Test Classic agent is on a different computer than the execution server. In this case, you can define the location of the Silk Test Classic agent, the Silk Test Classic AUT (Agent Under Test) Hostname.

To add a a Silk Test Classic AUT host to the selected execution plan or edit the host:

1. In the menu, click **Execution Planning** > **Details View**.
2. Select the execution plan to which you want to assign the Silk Test Classic AUT host.
3. Click the **Deployment** tab.
4. In the **Silk Test Classic AUT Hostname** section, click **Edit**. The **Edit Silk Test Classic AUT Hostname** dialog box displays.

5. In the **Hostname** text box, type the name of the computer where the Silk Test Classic agent runs.

   Proper configuration of option files is required. For details on the command-line option `-m`, refer to the Silk Test Classic documentation.
6. Click **OK** to add the Silk Test Classic AUT host to the selected execution plan.

Adding Manual Testers

For execution plans that include manual tests, the **Deployment** page enables you to assign users as manual testers to a selected execution plan. You can assign multiple manual testers to the execution plan

To assign a manual tester to an execution plan:

1. In the menu, click **Execution Planning** > **Details View**.
2. In the **Execution Plans** tree, select the execution plan that you want to edit.
3. Click the **Deployment** tab.
4. Click **Edit** in the **Manual Testers** section. The **Manual Testers** dialog box appears.
5. In the **Available** list box, select the user group of which the tester is a member. The list box is populated with all members of the user group.
6. Select the name of the user you want to assign as a manual tester.
7. Click **Add** to add the user to the **Selected** list box; or click **Add All** to add all of the group's members and testers.
8. Click **OK** to close the **Manual Testers** dialog box.

Removing a Tester Assignment from an Execution Plan

To remove a tester assignment from the selected execution plan:

1. In the menu, click **Execution Planning** > **Details View**.
2. Select the execution plan for which you are removing a tester assignment.
3. Click the **Deployment** tab.
4. Click **Edit** in the **Manual Testers** section. The **Manual Testers** dialog box appears.
5. From the **Selected** list, select the name of the assigned user that you want to remove.
6. Click **Remove** to remove the user from the **Selected** list; or click **Remove All** to remove all tester assignments.
7. Click **OK** to close the **Manual Testers** dialog box.

Dynamic Hardware Provisioning with Keywords

The hardware-provisioning technology of Silk Central helps you manage test environments that include numerous execution servers. Rather than having to configure a one-to-one static execution-server assignment for each automated execution plan, keywords enable Silk Central to automatically select the most appropriate execution server for each execution plan. This is done through dynamic comparison of each execution plan's keyword list with the keyword lists of all active execution servers.

Keywords typically describe your execution environment requirements, for example platform, operating system, and pre-installed applications. There are different uses for keywords, depending on whether the execution plan is executed automatically or manually.

Automated execution plans	When an automated execution plan is executed, Silk Central compares the execution plan's keywords with the keywords of all available execution servers. The execution is then run on the first-identified execution server that has a matching keyword list.
Manual execution plans	For manual execution plans, the manual tester can reflect the test environment by using keywords.

If you require an automated execution plan to be run on multiple execution servers, create a copy of the execution plan and assign additional keywords to the execution plan that match other execution servers.

Reserved Default Keywords

If you do not require hardware provisioning to execute automated execution plans, you can use the reserved keywords that are created automatically for each execution server. In such cases, it is not necessary that you manually assign keywords to your execution servers. Instead, you can configure a one-to-one static execution-server assignment for each execution plan.

A reserved keyword is assigned automatically to each newly created execution server. Reserved keywords are structured in the following form: `#<execution server name>@<location name>`.

Reserved keywords are only available when assigning keywords to execution plans. They are neither available or applicable when assigning keywords to execution servers.

In addition to the reserved keywords that are set up automatically for each defined execution server, reserved keywords are also set up for each execution server type:

#PHYSICAL	Limits execution-server provisioning to physical execution servers.
#VIRTUAL	Limits execution-server provisioning to virtual execution servers.

Keywords and Virtual Execution Servers

Keywords are assigned to virtual execution servers in the same way that they are assigned to physical execution servers. When you configure at least one virtual execution server, the *#VIRTUAL* keyword is dynamically created and made available for assignment to all execution plans. If you prefer that an execution occur on a virtual machine, select the *#VIRTUAL* keyword for the execution plan. When an execution plan has neither the *#VIRTUAL* and *#PHYSICAL* keywords, the execution may occur on either a virtual or a physical execution server, assuming the settings of the execution environments are the same. When a test's keywords match multiple virtual execution servers, the first matching virtual execution server that is identified is selected.

Folder Execution

The execution plans can be combined into execution folders, where a folder can include execution subfolders and execution plans. The options for an execution plan execution are also available for an execution folder execution.

When executing a folder, the contained subfolders and execution plans are treated as follows:

Keywords of Executed Folder	Keywords of Contained Execution Plan/Subfolder	Execution of Contained Execution Plan/Subfolder
Has no keywords	Has no keywords	An execution plan without keywords obtain status NOT EXECUTED after execution
Has no keywords	Has keywords	Execution servers are assigned based on the execution plan/ subfolder keywords
Has keywords	Has no keywords	Execution servers are assigned based on the folder keywords
Has keywords	Has keywords	Execution servers are assigned based on the folder keywords

Note: When a folder is executed manually and there are no keywords assigned, or no execution server exists for the assigned keywords, these execution plans are marked as `Not Executed`.

Creating New Keywords

To create new keywords:

1. In the menu, click **Execution Planning** > **Details View**.
2. In the **Execution Plans** tree, select the execution plan that you want to edit.
3. Click the **Deployment** tab.
4. In the **Execution Environment** section of the page, click **Edit**. The **Assign Keywords** dialog box appears. All keywords that have been defined for your execution environment are listed here.

   Note: The default reserved keywords for each execution server, `#<execution name>@<location name>`, are included in the list.
5. Type an alphanumeric keyword into the **Keyword** text box that describes the required environment for the execution plan.

   For example, the keyword might be the name of the platform, operating system, or pre-installed applications. The following characters can not be used in keywords: `#$?*\,;'"`.

   Note: Keywords are case insensitive. For example, “Vista” and “vista” are handled as the same keyword.
6. Press `Enter`.

   The new keyword is now available for assignment.

Assigning Keywords to Execution Plans

To assign keywords to execution plans:

1. In the menu, click **Execution Planning** > **Details View**.
2. In the **Execution Plans** tree, select the execution plan that you want to edit.
3. Click the **Deployment** tab.
4. In the **Execution Environment** section of the page, click **Edit**. The **Assign Keywords** dialog box appears. All keywords that have been defined for your execution environment are listed here.

   Note: The default reserved keywords for each execution server, `#<execution name>@<location name>`, are included in the list.
5. Select a keyword in the **Select or enter keywords** list or directly enter a new keyword.

   Select multiple keywords with **Ctrl+Click** or **Shift+Click**.

   Tip: The **Select or enter keywords** field is auto-complete enabled. When you enter alphanumeric characters, the field is dynamically updated with an existing keyword that matches the entered characters. The field is disabled when multiple keywords are selected in the **Select or enter keywords** or **Assigned keywords** lists.

   Tip: If you only have a few execution servers and do not require hardware provisioning, it might be enough to use only the default, reserved keywords that are created for each execution server. In such cases, it is not necessary that you select additional keywords.
6. Click **>** to move the keyword into the **Assigned keywords** list. Click **<** to remove keywords from the list. You can also double-click keywords to move them from the one list to the other.

   Note: The execution servers that match the assigned keywords are listed below in the dynamically-updated **Matching execution servers** list. This list updates each time you add or remove a keyword. Click on the name of an execution server in the list to access the execution servers in **Administration** > **Execution Servers** .
7. Click **OK** to save the keywords and close the **Assign Keywords** dialog box.

Removing Keywords from Execution Plans

To remove execution plan keyword assignments:

1. In the menu, click **Execution Planning** > **Details View**.
2. In the **Execution Plans** tree, select the execution plan that you want to edit.
3. Click the **Deployment** tab.
4. In the **Execution Environment** section of the page, click **Edit**. The **Assign Keywords** dialog box appears. All keywords that have been defined for your execution environment are listed here.

   Note: The default reserved keywords for each execution server, `#<execution name>@<location name>`, are included in the list.
5. Select the no longer needed keywords in the **Assigned keywords** list.

   Use **Ctrl+Click** or **Shift-Click** to select multiple keywords.
6. Click **<** to remove the keyword assignments.
7. Click **OK** to save the keywords and close the **Assign Keywords** dialog box.

Note: Keywords that are not in use anymore are automatically deleted from the system.

Execution Deployment Page

Execution Planning > **Details View** > **<Execution Plan>** > **Deployment**

The **Deployment** page displays all of the hardware-provisioning keywords that are defined for this execution plan. These keywords are used to describe the execution environment requirements for the execution plan. An execution server only matches the selected automated execution plan if it has all keywords assigned the execution plan requires. The **Deployment** page also displays the users who are assigned to execute manual tests, as well as the Silk Test Classic AUT hosts that are assigned to execute Silk Test Classic tests.

Note: New execution servers are set-up in **Administration** > **Execution Servers**. For details on how to set-up an execution server, see the *Administration* topics in this Help.

Execution Environment

Note: This section is not displayed for execution plans that are assigned to a testing cycle.

The **Deployment** page displays the following items in the **Execution environment** section:

Item	Description	
Assigned keywords	Lists the keywords that are assigned to the execution plan.	
	Automated execution plans	Keywords are used to automatically identify an appropriate execution server for each test execution.
	Manual execution plans	Keywords are used by the manual tester to reflect the test environment.
Edit	Click to edit the execution plan's keywords.	
Matching execution servers	Lists the active execution servers that have keyword lists that match the keywords list of this execution plan. All keywords in the keywords list of the execution plan must be included in the keyword list of the execution server. Click on the name of an execution server in the list to access the execution server list in **Administration** > **Execution Servers** .	

Manual Testers

Lists all manual testers who are assigned to this execution plan or folder. Click **Edit** to edit the list of manual testers.

Code Analysis Settings

Details code-analysis settings that are defined for this execution plan. Click **Active/Inactive** to enable or disable code analysis for this execution plan.

Video Recording

Note: This section is not displayed for execution plans that are assigned to a testing cycle.

Defines whether a video is recorded during the execution of the execution plan. This setting overrides the video recording settings of the individual tests that are assigned to the execution plan. You can select one of the following values:

Value	Description
---	Video recording is disabled, except for those assigned tests where the `recordVideo` is set.
Never	Video recording is always disabled, even for those assigned tests where the `recordVideo` is set.
Always	Records a video on every execution of the execution plan.
On Error	Records a video when an error occurs during the execution of the execution plan.

Screen Capturing

Note: This section is not displayed for execution plans that are assigned to a testing cycle.

Defines whether a screenshot is captured during the execution of the execution plan. This setting overrides the screen capturing settings of the individual tests that are assigned to the execution plan. You can select one of the following values:

Value	Description
---	Screen capturing is disabled, except for those assigned tests where the `captureScreen` parameter is set.
Never	Screen recording is always disabled, even for those assigned tests where the `captureScreen` parameter is set.
On Error	Captures a screenshot when an error occurs during the execution of the execution plan.

Execution Stop Condition

Defines whether the execution stops if a test fails or if a test is not executed. This setting is especially useful if it makes no sense to keep a set of tests running if even one test fails. Use this setting to save resources and to be notified earlier if a test fails. You can select one of the following values:

Value	Description
---	The execution proceeds, even if a test is not executed or fails.
On Error	The execution stops with the first failed test.
Not Executed	The execution stops with the first not executed test.
On Error or Not Executed	The execution stops with the first failed or not executed test.

Note: If an execution is stopped, the results of the successfully executed tests are preserved.

Note: Test packages (with all subordinated tests) will always be executed to the end. They will not be stopped intermittently. However, data-driven tests will be stopped as soon as a subordinated test fails.

Silk Test Classic AUT Hostname

Lists all Silk Test Classic AUT hosts that are defined for this execution plan. Click **Edit** to edit the list of Silk Test Classic AUT hosts.

Configuring Execution Dependencies

An execution dependency allows you to configure the automatic execution of one execution plan based on the results of another execution plan. For example, *If execution plan 'A' fails, automatically execute execution plan 'B'*.

Adding Dependent Execution Plans

To add a dependent execution plan:

1. In the menu, click **Execution Planning** > **Details View**.
2. Select the execution plan that will act as the master execution plan.
3. Click the **Dependencies** tab.
4. Click **Add dependent Execution Plan**. The **Add dependent Execution Plan** dialog box appears.
5. From the **Condition** list, select the condition that is to trigger the dependent execution plan.
   - `Any`
   - `Passed`
   - `Failed`
   - `Not Executed`

   The `Any` status means that the dependent test execution will trigger no matter what the status of the previous test execution is.
6. Select an execution plan from the **Execution Plans** tree.
7. Specify where the dependent execution plan is to be deployed.

Option	Description
As specified in the dependent Execution Plan	Automated tests assigned to the dependent execution plan will be executed on the execution server specified for the dependent execution plan on the **Deployment** page. Manual tests assigned to the dependent execution plan will be assigned to the users specified for the dependent execution plan on the **Deployment** page.
Same as <selected execution plan's execution server>	Automated tests assigned to the dependent execution plan will be executed on the execution server specified for the master execution plan on the **Deployment** page. Manual tests assigned to the dependent execution plan will be assigned to the users specified for the master execution plan on the **Deployment** page.
Specific: Execution Server/ Manual Tester	Select a pre-configured execution server and/or a manual tester from the list boxes. Automated tests assigned to the dependent execution plan will be executed on the specified execution server. Manual tests assigned to the dependent execution plan will be assigned to the specified manual tester. If only a specific manual tester is defined and no server, only manual tests will be executed. If only a specific execution server is defined and no manual tester, only automated tests will be executed.

8. Click **OK** to create the dependency.

   Note: Silk Central will not allow you to create cyclical execution dependencies. You can select conditions to fulfill for manual tests. For example, if the selected condition is `Failed` and all manual tests passed, but some automated tests failed, only automated tests assigned to the dependent execution plan are executed.

Editing a Dependency

Note: To edit an existing dependency, you must select the master execution plan, which is the definition for which a specific condition will trigger the execution of the dependent execution plan. You cannot edit dependency settings from the dependent execution plan.

To edit a previously configured dependency:

1. In the menu, click **Execution Planning** > **Details View**.
2. In the **Execution Plans** tree, select the execution plan that you want to edit.
3. Click the **Dependencies** tab.
4. In the **Dependent Execution Plans** section, click in the **Actions** column of the dependent execution plan. The **Edit Dependency** dialog box opens.
5. From the **Condition** list, select the condition that is to trigger the dependent execution plan.

   - `Any`
   - `Passed`
   - `Failed`
   - `Not Executed`

   The `Any` status means that the dependent test execution will trigger no matter what the status of the previous test execution is.
6. Specify where the dependent execution plan is to be deployed.

Option	Description
As specified in the dependent Execution Plan	Automated tests assigned to the dependent execution plan will be executed on the execution server specified for the dependent execution plan on the **Deployment** page. Manual tests assigned to the dependent execution plan will be assigned to the users specified for the dependent execution plan on the **Deployment** page.
Same as <selected execution plan's execution server>	Automated tests assigned to the dependent execution plan will be executed on the execution server specified for the master execution plan on the **Deployment** page. Manual tests assigned to the dependent execution plan will be assigned to the users specified for the master execution plan on the **Deployment** page.
Specific: Execution Server/ Manual Tester	Select a pre-configured execution server and/or a manual tester from the list boxes. Automated tests assigned to the dependent execution plan will be executed on the specified execution server. Manual tests assigned to the dependent execution plan will be assigned to the specified manual tester. If only a specific manual tester is defined and no server, only manual tests will be executed. If only a specific execution server is defined and no manual tester, only automated tests will be executed.

Deleting a Dependency

To delete a dependency:

1. In the menu, click **Execution Planning** > **Details View**.
2. Select the master execution plan from which you want to delete a dependency.

3. Click the **Dependencies** tab.
4. In the **Dependent Execution Plans** section, click ✕ in the **Actions** column of the dependent execution plan.
5. Click **Yes** on the **Delete Dependency** dialog box to delete the dependency.

Execution Dependencies Page

Execution Planning > **Details View** > **<Execution Plan>** > **Dependencies**

Note: This page is not displayed for execution plans that are assigned to a testing cycle.

The **Dependencies** page lists dependent execution plans and master execution plans of the selected execution plan.

The page is divided into two parts. For the selected execution plan, the page shows both the **Master Execution Plans**, which are the execution plans for which a specific condition triggers the selected execution plan, and the **Dependent Execution Plans**, which are the execution plans that will be triggered if the selected execution plan results in a specific condition.

Master Execution Plans

For each execution plan in the list, the page displays the following columns:

Column	Description
Name	Name of the master execution plan that the selected execution plan is dependent upon.
Condition	Condition of the master execution plan that must be met for the selected execution plan to be triggered.

Dependent Execution Plans

For each execution plan in the list, the page displays the following columns:

Column	Description
Name	Name of the dependent execution plan that the selected execution plan serves as the master of.
Condition	Condition of the selected execution plan that must be met for the dependent execution plan to be triggered.
Execution Server / User(s)	Execution server where the dependent execution plan is to be run or, in the case of a manual test execution, manual tester who is to perform the manual test.
Actions	Actions that can be performed on the selected dependency. **Edit Settings** and **Delete Dependency**.

Execution Notifications Page

Execution Planning > **Details View** > **<Execution Element>** > **Notifications**

The **Notifications** page includes check boxes which allow you to check whether you want to be notified based on the outcome of the execution.

Notification only works if an email server has been configured by your administrator. You also have to specify an email address for your account in **User: <User Name>** > **User Settings** .

Check Box	Description
Execution finishing successfully	Check to receive a notification email each time an execution run finishes successfully.
Execution finishing with not passed tests	Check to receive a notification email each time an execution finishes with status `not executed` or `failed`.
Execution finishing with changed number of not passed tests	Check to receive a notification email each time the number of failed or not executed tests changes in comparison to the previous run, when an execution finishes.

Assigned Tests

This section describes how to assign tests to execution plans.

Assigning Tests from Grid View to Execution Plans

The tests that are assigned to the selected execution plans are listed on the **Assigned Tests** page.

To assign one or more tests from **Grid View** to one or more execution plans:

1. In the menu, click **Tests** > **Grid View** .
2. Select the tests you want to assign to execution plans.
   You can select multiple tests with **Ctrl+Click** or **Shift+Click**.
3. Right-click the selected tests and click **Save Selection**.
4. In the menu, click **Execution Planning** > **Details View**.
5. Select the execution plan to which you want to assign the selected tests.
6. Click the **Assigned Tests** tab.
7. Click **Assign Saved Selection**.

Note: Only tests that reside in the test container of the execution plan are inserted. You can insert the selected tests to more than one execution plans. You can not insert them into requirements in a different project. The selection persists until you make a different selection or close Silk Central.

Manually Assigning Tests to Execution Plans

The tests that are assigned to the selected execution plans are listed on the **Assigned Tests** page.

To manually assign tests to an execution plan:

1. In the menu, click **Execution Planning** > **Details View**.
2. Select the execution plan to which you want to assign the selected tests.
3. Click the **Assigned Tests** tab.
4. Click the **Manual assignment** option. All tests of the test container which is associated with the selected execution are displayed in the **Tests** tree. If you have created a test filter, you can select it from the filter list above the **Tests** tree. To create a new test filter, click **Tests** in the menu and click (**New Filter**) in the toolbar.
5. In the tree, click on the left of the test that you want to assign to the execution plan.
   Clicking the assign arrow of a folder or the top-level container assigns all child tests of that parent to the selected execution plan.

Tip: Right-click a node to expand and collapse it.

Assigning Tests to Execution Plans through a Filter

The tests that are assigned to the selected execution plans are listed on the **Assigned Tests** page.

You have to create a filter with the category **Test** before you can perform the following steps. See *Creating Filters* for details. Alternatively select an existing filter.

To use a filter to assign one or more tests to an execution plan:

1. In the menu, click **Execution Planning** > **Details View**.
2. Select the execution plan to which you want to assign tests.
3. Click the **Assigned Tests** tab.
4. Click the **Assignment by filter** option.
5. Choose a filter from the list.

Note: If you assign tests to an execution plan in **Tests** > **Grid View** , the test assignment type is automatically set to **Manual Assignment**, but the previously-filtered tests remain in the **Assigned Tests** page.

Locating Tests Assigned to Execution Plans

To locate manually assigned tests in the **Tests** tree:

1. In the menu, click **Execution Planning** > **Details View**.
2. Select the execution plan for which you want to locate the assigned tests.
3. Click the **Assigned Tests** tab.
4. *Optional:* Select **Manual assignment**, if it is not selected.
5. In the **Actions** column of a test, click to find out in which test folder or container the test is stored in.

The corresponding parent folder is expanded in the **Tests** tree and the assigned test is highlighted in blue.

Removing Test Assignments

To remove a manually assigned test:

1. In the menu, click **Execution Planning** > **Details View**.
2. Select the execution plan from which you want to remove the assignment.
3. Click the **Assigned Tests** tab.
4. In the **Actions** column of the assigned test, click .
   Repeat this step for all assignments that you want to delete.

   Tip: To remove all assigned tests, click **Remove All**.

Execution Assigned Tests Page

Execution Planning > **Details View** > **<Execution Element>** > **Assigned Tests**

Note: This page is not displayed for execution plans that are assigned to a testing cycle.

The **Assigned Tests** page lists all tests that are assigned to the selected execution plan or configuration suite. Use this page to assign additional tests to the execution plan or configuration suite, to remove tests from the execution plan or configuration suite, or to change the execution order of the assigned tests.

If you have created a test filter, you can select it from the filter list above the **Tests** tree. To create a new test filter, navigate to the **Tests** area and click **New Filter** on the toolbar.

Note: All changes in this page are immediately applied.

Note: When you access the page from a sub-element of a configuration suite, the page is read-only.

The page includes the following items:

Item	Description
Manual assignment	Click to manually assign tests to the execution plan or configuration suite.
Use tree order	Check to set the execution order of the assigned tests to follow the execution order in the **Tests** area.
Synchronize Current Runs	Click to synchronize the list of assigned tests with the most current test assignment.
Assign Saved Selection	Click to assign a selection of tests from **Tests** > **Grid View**.
Assignment by filter	Click to automatically assign tests to the execution plan or configuration suite based on a pre-defined filter. The available filters are listed in the list box.
Assigned Tests	Amount of tests that are assigned to the execution plan or configuration suite.
Time Left in Testing Cycle [hh:mm]	This field is available when an execution plan is in a testing cycle. It indicates the hours remaining in a testing cycle after subtracting the combined planned time of all tests from the **Available Time** in the testing cycle. **Note: Planned Time** is for manual tests only.
Planned Time	The estimated time to execute all tests in the execution plan or configuration suite. For configuration suites, the **Planned Time** is the sum of the planned times of all the configurations in the suite. **Note: Planned Time** is for manual tests only.
Assigned Tests List	For each assigned test, the page displays the following columns: **Order** — The execution order of the test. Uncheck the **Use tree order** check box to change the execution order. Click in the text box, type the new order of the test, and then press `Enter` to confirm the change. Each change in each of the text boxes must be confirmed by pressing `Enter`. If you change the orders of multiple tests without pressing `Enter` each time, just the last change before pressing `Enter` is taken. **Actions** — You can perform the following actions on the assigned tests when the **Manual assignment** option button is clicked: **Action** / **Description** Remove the selected test from the list. Locate the selected test in the test tree. **Test** — Name of the test. Click to access the test in the **Tests** area. **Status** — Status of the last run of the test in the context of the execution plan or the configuration suite. When the test is executed outside of the context of the execution plan or configuration suite, the displayed status remains unchanged. If the test has

Item	Description	
		not yet been executed in the context of the execution plan or configuration suite, the status is `N/A`. For tests or test packages that are included in a configuration suite, the status is an aggregation of all statuses of all configurations within the suite: • If the test is assigned only to the configuration suite, the status is `Passed` only if it is passed in all configurations. If the status is not `Passed` in all configurations, the status of the worst run is propagated, with the following top-down priority: **1.** N/A **2.** Not Executed **3.** Failed **4.** Passed The status of a requirement that is assigned to the test is `Failed` if the test fails in one or more of the configurations. • We do not recommend assigning the test to a configuration suite and one or more simple execution plans. However, in this case, the aggregate of the configuration statuses is one status, and the last statuses of the execution plans are other statuses. The status that was executed last determines the last status of the test. • If the test is assigned to a simple execution plan only, the status is updated in response to the status of the last test run.
	Last Execution	Date and time of the last run of the test in the context of the execution plan or configuration suite. When the test is executed outside of the context of the execution plan or configuration suite, the displayed time and date remain unchanged.
	Planned Time	The estimated time for the execution of the test. **Note:** Planned Time is for manual tests only.
Test	Shows all tests in the **Tests** tree that are available for assignment to the selected execution plan or configuration suite. Double-click a test or use ⇦ to assign the tests to the execution plan or configuration suite. For information about inserting multiple tests from the **Tests** area to the execution plan or configuration suite, see *Assigning Tests from Grid View to Execution Plans*.	

Schedules

In the **Schedule** page, once you have defined the tests that are to be included in an execution plan, a folder, or a configuration suite, you can define the schedule, by which the execution plan, folder, or configuration suite is to be executed.

Three scheduling options are available:

- **None**
- **Global**
- **Custom**

Note: You can define schedules for execution plans, folders, or configuration suites. If a schedule is defined for a folder or a configuration suite, all execution plans that are included in the selected folder or configuration suite will be executed at the specified schedule. All execution plans, folders, or configuration suites with no keywords assigned get the status `Not Executed` when executed in a schedule. The scheduling options for parts of a project copy or baseline are set to none to prevent losing the last execution status. For more information on copies and baselines of projects, see the *Administration* topics in this Help.

Definite Runs

Definite runs enable you to define times at which tests will be executed regardless of configured schedules.

Creating a Custom Schedule

To create a custom schedule for a selected execution plan, folder, or configuration suite:

1. In the menu, click **Execution Planning** > **Details View**.
2. Select the execution plan, folder, or configuration suite for which you want to configure a custom schedule.

   Note: To save an edited version of a global schedule as a custom schedule, click **Edit** while the global schedule is selected in the list box. This enables you to edit the global schedule and save the result as a custom schedule.
3. Click the **Schedule** tab.
4. Click the **Custom** option to enable the scheduling controls.
5. Click **Edit**.
6. Click next to the **From** field and use the calendar tool to specify the time and date when the execution schedule should begin.
7. Specify the **Interval** at which the tests should be executed.
8. In the **Run** section, specify when the schedule should end.

   Select one of the following options:

   - Click **Forever** to define a schedule with no end.
   - Click **n Time(s)**.
   - Click next to the **until** field and use the calendar tool to specify the time and date when the execution schedule should end.
9. *Optional:* Click **Add Exclusion** to define times when scheduled elements should not be executed.
10. *Optional:* Click **Add Definite Run** to define times when unscheduled executions should be executed.
11. Click **Save** to save your custom schedule.

Specifying Global Schedules

Silk Central offers the possibility of defining global schedules, which can be reused in Silk Central for the scheduling of tests. Global schedules can speed up the process of scheduling tests, since the need to define individual schedules for each test is reduced to only those tests that require special scheduling.

To select a pre-defined schedule that is globally available throughout Silk Central:

1. In the menu, click **Execution Planning** > **Details View**.
2. Select the execution plan, folder, or configuration suite for which you want to configure a schedule.
3. Click the **Schedule** tab.

4. Click the **Global** option button.
5. Select the required pre-defined schedule from the list box.

   Details of the pre-defined schedule are displayed in a read-only calendar view. To save an edited version of a global schedule as a custom schedule, click **Edit**.

   Note: You can configure global schedules in **Administration** > **Schedules**.

Specifying No Schedule

To specify that no schedule should be defined for an execution plan, a folder, or a configuration suite:

1. In the menu, click **Execution Planning** > **Details View**.
2. Select the execution plan, folder, or configuration suite, for which you want to define that it is not to be executed based on schedules.
3. Click the **Schedule** tab.
4. Click the **None** option button.

Schedule Exclusions

A schedule exclusion is a regularly occurring time period during which executions should be suspended, for example during a weekly planned system downtime or during weekends. You can add as many exclusions to a schedule as you need. Exclusions enable you to define weekdays and time-of-day intervals during which tests are not to be executed, regardless of configured schedules. For example, you may not want tests to be executed on weekends.

Adding Exclusions

Note: You must have administrator rights to edit global schedules. To define a scheduling exclusion for a global schedule, navigate to **Administration** > **Schedules**.

To add an exclusion to a custom schedule:

1. In the menu, click **Execution Planning** > **Details View**.
2. Select an execution plan, folder, or configuration suite, for which you want to add a scheduling exclusion.
3. Click the **Schedule** tab.
4. Click the **Custom** option to enable the scheduling controls.
5. Click **Add Exclusion**.
6. On the **Configure Schedule Exclusion** page, select the weekdays on which tests should be suppressed.
7. Define the specific time intervals on those days during which execution should be suppressed.
8. Click **OK**. Your exclusion settings are now listed on the **Schedule** page.
9. Click **Save** to add the exclusion to the current schedule, or continue adding additional exclusions.

Editing Exclusions

To edit an exclusion:

1. In the menu, click **Execution Planning** > **Details View**.
2. Select the execution plan, folder, or configuration suite, for which you want to edit a previously configured exclusion.
3. Click the **Schedule** tab.
4. In the **Actions** column of the exclusion, click .

5. Edit the exclusion as required and click **OK**.
6. Click **Save**.

Deleting Exclusions

To delete an exclusion:

1. In the menu, click **Execution Planning** > **Details View**.
2. Select the execution plan, folder, or configuration suite, for which you want to delete a previously configured exclusion.
3. Click the **Schedule** tab.
4. In the **Actions** column of the exclusion, click .

Definite Runs

A definite run is a run of an execution plan, a folder, or a configuration suite, that you schedule to run at a specific time, independent of the schedule that is configured for the execution plan, folder, or configuration suite. You can add as many definite runs to a schedule as you need.

Adding Definite Runs

Note: You must have administrator rights to edit global schedules. To define a definite run for a global schedule, navigate to **Administration** > **Schedules**.

To add a definite run to a custom schedule:

1. In the menu, click **Execution Planning** > **Details View**.
2. Select the execution plan, folder, or configuration suite, for which you want to add a definite run.
3. Click the **Schedule** tab.
4. Click the **Custom** option to enable the scheduling controls.
5. Click **Add Definite Run**.
6. On the **Configure Definite Run** page, click and select the date and time when the execution plan, folder, or configuration suite, should definitely be run.
7. Click **OK**. Your definite run settings are listed on the **Schedule** page.
8. Click **Save** to add the definite run to the current schedule, or continue adding definite runs.

Editing Definite Runs

To edit a definite run:

1. In the menu, click **Execution Planning** > **Details View**.
2. Select the execution plan, folder, or configuration suite, for which you want to edit a previously configured definite run.
3. Click the **Schedule** tab.
4. In the **Actions** column of the definite run, click .
5. Edit the definite run criteria as required and then click **Save**.

Deleting Definite Runs

To delete a definite run:

1. In the menu, click **Execution Planning** > **Details View**.
2. Select the execution plan, folder, or configuration suite, for which you want to delete a previously configured definite run.

3. Click the **Schedule** tab.
4. In the **Actions** column of the definite run, click .

Schedule Page

Execution Planning > **Details View** > **<Execution Element>** > **Schedule**

Note: This page is not displayed for execution plans that are assigned to a testing cycle.

The **Schedule** page is used to define schedules for execution plans, folders, configuration suites, and report subscriptions.

The page provides the following schedule types:

Schedule Type	Description
None	Click this option button so that the asset is not executed based on a schedule. All schedules included in a copy or baseline of a project are initially set to **None**.
Global	Click this option button to select a pre-defined schedule from the list box for the asset. Selecting a global schedule includes the schedule exclusions and definite runs which are defined in the global schedule. For information on defining global schedules, see the *Administration* topics in this Help. Selecting a global schedule displays the schedule details below the **Custom** option button.
Custom	Click this option button to define a custom schedule for the execution plan, folder, or configuration suite. Click **Edit** to edit the custom schedule in the fields below.

For each selected schedule type, the page displays details. For a custom schedule, the details are editable.

Caution: If tests assigned to an asset are not executed, the reason might be that the asset is still executing because of an earlier schedule, and the schedule interval is shorter than the duration of the execution. In this case, either increase the schedule interval, improve the performance of the executed tests, or remove tests from the execution plan. To view the application server logfile, click the **Application Server Log** tab in **Administration** > **Log Files** .

Schedule Details

The page displays details for the selected schedule type, which are editable for a custom schedule.

Item	Description
From	Specifies when the execution schedule begins. Click next to the specified date to change the date and time.
Interval	Specifies the interval at which the tests are executed.
Adjust schedule to daylight savings	Check this check box to automatically have your schedule adjust to daylight savings time. **Note:** Daylight adjustment only works for intervals of two-hour multiples to avoid duplicate runs when setting time back one hour.
Run	Specifies when the execution ends:

Item	Description	
	Forever	Click this option button to specify that the execution should not stop executing.
	Time(s)	Click this option button and select a number from the list box to define a specific number of executions.
	Until	Click this option button to pick a specific time at which test executions are to end. Click next to the specified date to change the date and time.
Exclusion	The exclusions that are defined for the schedule. To add an exclusion, click **Add Exclusion**.	
Definite Runs	The definite runs that are defined for the schedule. To add a definite run, click **Add Definite Run**. Click in the action column of a selected definite run to access the calendar tool and specify when the definite run is to take place.	

Executing Tests Assigned to Execution Plans

This section explains how to run tests that are assigned to execution plans with Silk Central.

You can run individual execution plans, folders, and configuration suites. In all cases you can define whether all assigned tests, or only tests matching certain status criteria should be executed. After an execution plan including automated tests is started, it is put in the central execution queue and an appropriate execution server is chosen to accomplish automated execution of the tests, based on the matching keywords and the server availability.

Starting Execution Plans

To run an execution plan independent of a schedule:

1. In the menu, click **Execution Planning** > **Details View**.
2. In the **Execution Plans** tree, select the execution plan, folder, or configuration suite that you want to execute.
3. Click (**Run**) on the toolbar. The **Run** dialog box appears.
4. Define which tests you want to execute in the **Run** dialog box.
5. If the execution plan does not contain pending manual tests, the **Go To Activities** dialog box displays. Click **Yes** to view the details of the execution plan runs in the **Activities** page, or click **No** if you want to remain on the current Web page.

   Note: Check the **Don't show this dialog again (during this login session)** check box if you do not want to be asked about switching to the **Activities** page again in the future. This setting will be discarded when you log out of Silk Central.

Run Dialog Box

Execution Planning > **Details View** > **<Execution Element>** > **Run**

Execution Planning > **Document View** > **<Execution Element>** > **Run**

The **Run** dialog box enables you to specify which tests you want to execute based on filter criteria and to specify which product build the test should be run against. To open the **Run** dialog box, select an executon plan or an execution folder and click **Run** on the toolbar.

Item	Description
All tests	Select this option to execute all tests.
Tests...	Select this option to only execute tests that meet one of the following options: **Option** — **Description** **With status Failed** — Check to re-execute all tests in the selected execution plan, that have the status `Failed`. **Not run with build ...** — Check to re-execute all tests in the selected build that are not executed in the selected build. Tests that are executed in the selected or a later build are not re-executed.
Tests that have had issues fixed since their last run	Select this option to only execute those tests that have had issues advanced to the `Fixed` state since the test's last execution.
Set build for execution plan	Select a past build from the **Set build for execution plan** list box to have the test run against a specific past build. This field defaults to the current build. Note that this option is not available if the execution plan is configured to read the build number from a build information file. If an execution folder contains execution plans with different product versions assigned to each, the build cannot be selected for the execution of the execution folder.
Run type	Choose **Run as specified** to run all selected tests with their own test type, or choose **Run automated tests manually** to re-run all selected tests manually.
Go to Activities page	Check this check box to advance to the **Activities** page after you define tests for execution.

Manually Executing Automated Tests

Automated tests might sometimes deliver unexpected results because of environmental issues. When such a test fails in a system, and you want to verify if the failure is caused by a system component, or you know that the problem is caused by a currently dysfunctional system component, you can re-run the automated test manually.

To run an automated test manually, perform the following steps:

1. In the menu, click **Execution Planning** > **Details View**.
2. In the **Execution Plans** tree, select the execution plan, folder, or configuration suite that you want to execute.
3. Click (**Run**) on the toolbar. The **Run** dialog box appears.
4. Define which tests you want to execute.
5. Select **Run automated tests manually** in the **Run type** list box. All selected tests are then treated as manual tests, and the **Current Run** page opens.

Manual Testing

The manual testing functionality of Silk Central allows testers to efficiently execute manual tests. The **Manual Testing** window provides an intuitive, easy-to-use UI with just the information that is relevant to the manual tester in the execution process.

Manual testers have quick access to the **Manual Testing** window via the dashboard panel **Manual Tests Assigned to Me**. For more information on the dashboard and on panels, see *Dashboard*. The **Manual Testing** window is structured as follows: In the overview area, it lists the tests that are contained by the selected execution plan or testing cycle. Beneath, in the test steps area, it displays the list of steps that are configured for the selected test. Manual testers can process the steps from the top to the bottom.

As a manual tester, you can tick off tests and test steps when you have executed them successfully, write a result text, create and assign issues, and attach result files. Additionally, you can capture screen images and record videos to illustrate how you executed a test or test step, or to show an issue that occurred during the testing process.

The integrated timer shows you, how long it took you to execute a test and a bar visualizes the testing progress. The **Testbook** (which is a panel you can add to your dashboard) shows you real-time updates about all activities that take place during manual testing within a project.

Manual Testing Window

To open the **Manual Testing** window, click **Home** > **My Dashboard** in the menu, and then click (**Continue Manual Test**) in the panel **Manual Tests Assigned to Me**. If this panel does not display on your dashboard, you have to add it. For more information on the dashboard and on panels, see *Dashboard*.

You can also access the **Manual Testing** window on the **Activities** page (in the menu, click **Tracking** > **Activities**) in the **Current Executions** grid, or on the **Current Run** page.

The **Manual Testing** window shows two areas:

- The overview area on the top.
- The test steps area on the bottom.

Overview Area

The overview area is the area on the top of the **Manual Testing** window.

The overview area shows:

Item	Button	Description
Execution plan or testing cycle		The name of the execution plan or testing cycle that contains the tests.
Edit Settings		Click the button to edit the following settings: • You can configure if the next test/step should automatically be selected when the status of a test/step is changed. • You can configure which additional test information shall display in the overview area. • You can hide or display certain actions (like the **Edit version and build** action). These settings can be defined individually for each user.
Finish		Click **Finish** to finish the run. This option displays only if you open a test that is unassigned or that is assigned to an execution plan. It

Item	Button	Description
		does not display if you open a test that is assigned to a testing cycle. Select the action you want to perform for tests that have not been executed and click **Finish**. The selected status change will only be applied to non-executed tests for which no status reason has been set.
Passed		Click the button to mark the status of the currently selected test as **Passed** and automatically select the next test. This is the default setting of the button.
Failed		Click the button to mark the status of the currently selected test as **Failed** and automatically select the next test.
Test name		The list that appears shows all tests of the execution plan or testing cycle and their current status. Click on a test or press the **Up** and **Down** keys to navigate through the tests and their steps. If you specified to run a test with a certain configuration, the configuration name displays next to the test name in parenthesis. For more information, see *Manual Configuration Testing*. Click to show the test in the **Details View** of the **Tests** area.
Requirements Assigned		Click the button to view the requirements that were assigned to the test. The button displays only if there is at least one requirement assigned. The number beside the button shows how many requirements were assigned.
Issues Assigned		Click the button to view the issues that were assigned to the test. The button displays only if there is at least one issue assigned. The number beside the button shows how many issues were assigned. The **Issues** dialog box shows both the issues that were assigned to the test and the issues that were assigned to the test steps.
Attachments Assigned		Click the button to view the attachments that were assigned to the test. The button displays only if there is at least one attachment assigned. The number beside the button shows how many attachments were assigned.
Block/Unblock		Click the button to set the test to blocked/unblocked. Setting a test to blocked is useful to indicate that the test cannot be continued due to certain restrictions, for example a problem with the IT infrastructure.
Test Status		The status of the test. It can be set automatically or manually. Click ▼ beside the status icon to select a status. For more information, see *Statuses of Tests and Test Steps*.
Edit Version and Build		Click the button to edit the version and the build. For more information, see *Editing Version and Build*.
Capture Screen		Click the button to capture an image of your screen and to attach it to the test. The captured image will be added to the attachment list. For more information, see *Capturing Screen Images*.
Record Video		Click the button to record a video of the actions on your screen and to attach it to the test. The video will be added to the attachment list and you can save it to your local file system. For more information, see *Recording Videos*.
Attach Result File		Click the button to attach a result file to the test. For more information, see *Attaching Result Files*.

Item	Button	Description
Assign or Create Issue		Click the button to create a new issue and attach it to the test or to assign an existing issue. For more information, see *Assigning or Creating Issues*.
Start Code Analysis		Click the button to start the analyzing process. The **Start Code Analysis** dialog box displays. Select a **Profile** and enter one or more **Hostnames**. If coverage information already exists for this test, you can replace it by checking the checkbox. Click **Start Code Analysis** to actually start the process. When you click **Stop Code Analysis**, Silk Central stores the code analysis information to the test run.
Synchronize Test Run		Click the button to synchronize a test run with an adapted test. If you started to execute a test and you decide to make changes to this test in the **Tests** unit in the meantime, you can synchronize the test run with the adapted test.

Note: To close a dialog box, click anywhere outside or click (**Close**).

Test Steps Area

The test steps area is below the overview area on the **Manual Testing** window.

The test step area shows:

Item	Button	Description
Edit Used Time		Click the button to manually enter how long it took you to execute the test. When you open the **Manual Testing** window or if you select another test, the timer automatically starts. The flashing colon indicates that the timer is running. Click to pause the timer, click to start the timer. The figures on the left side show the actually used time, the figures on the right side show the planned time.
Progress Bar		Visualizes the testing progress. The progress bar shows how many steps you have already executed.
Post Message to Testbook		Click the button to post a message to the **Testbook**.
Passed		Click the button to mark the status of the currently selected test step as **Passed** and automatically select the next step. This is the default setting of the button.
Failed		Click the button to mark the status of the currently selected test step as **Failed** and automatically select the next step. This is the default setting of the button.
Show/Hide Details		Click the button to expand a test step and to display detailed information like the **Action Description** or the **Expected Results** as well as all buttons and the result field.
Step name		The name of the test step. Step names with the status **Not Executed** are bold.
Issues Assigned		Click the button to view the issues that are assigned to the test step. The button displays only if there is at least one issue assigned. The number beside the button shows how many issues are assigned.
Attachments Assigned		Click the button to view the attachments that are assigned to the test step. The button displays only if there is at least one attachment assigned. The number beside the button shows how many attachments are assigned.

Item	Button	Description
Step Status		The status of the step. Click ▼ beside the status icon to select a status. Silk Central will automatically calculate a test status based on the step statuses. For more information, see *Statuses of Tests and Test Steps*.
Result field		Enter result text into the field. Click anywhere outside to save the text.
Capture Screen		Click the button to capture an image of your screen and to attach it to the test step. The captured image will be added to the attachment list. For more information, see *Capturing Screen Images*.
Record Video		Click the button to record a video of the actions on your screen and to attach it to the test step. The video will be added to the attachment list and you can save it to your local file system. For more information, see *Recording Videos*.
Attach Result File		Click the button to attach a result file to the test step. For more information, see *Attaching Result Files*.
Assign or Create Issue		Click the button to create a new issue and attach it to the test step or to assign an existing issue. For more information, see *Assigning or Creating Issues*.

Note: To close a dialog box, click anywhere outside or click (**Close**).

Tip: You can use the keyboard when you work on a test: To change the status of the selected test step, use the shortcuts **Ctrl+Shift+A** (for passed) and **Ctrl+Shift+S** (for failed). These combinations can easily be pressed with one hand. Press the **Up** and **Down** keys to navigate through the tests and their steps, press **Right** to expand a step and **Left** to collapse it. To close a dialog box, press **Esc**.

Capturing Screen Images

When you execute tests in the **Manual Testing** window, you can capture images of your screen. The captured images will be attached to the test or test step. This is especially helpful when a test step fails and you want to outline when, where, and how the issue occurred.

Make sure that you have a Java Runtime Environment (JRE) installed and that the application is allowed to run. Otherwise you will not be able to capture screen images. You can download the JRE from *http://www.oracle.com/technetwork/java/javase/downloads/index.html*.

To capture a screen image:

1. Open the **Manual Testing** window. For more information, see *Manual Testing Window*.
2. Click ▷ (**Show Details**) on the left side to expand a test step.
3. Click (**Capture Screen**) . The **Screen Capturing** functionality starts.
4. Perform one of the following actions:
   - Draw a rectangle with your mouse to select the area that shall be captured.
   - Press **Enter** to take a capture of the entire screen. If you have more than one monitor, the screen of all monitors will be captured.
   - Press **Esc** to cancel.

   The **Screen Capturing** window appears.
5. Edit the screen capture as desired. You can add text and graphical items like arrows and rectangles. In the editor, you can use the keyboard to perform the following actions:
   - Press the arrow keys to move objects (like rectangles or arrows) around. Hold down **Shift** and press the arrow keys to precisely adjust the position.

- Select an object with the **Move** tool and press **Backspace** or **Delete** to remove the object.
- If you use the text tool, you can press **Shift+Enter** to confirm the input or press **Esc** to cancel.
- Press **Ctrl+C** to copy the screen capture to the clipboard.

6. Click **Upload**. The screen capture is attached to the test step.
7. To view the attached screen capture, click . The **Attachments** dialog box with a list of all attached files appears.
8. You can delete attached files by clicking (**Delete Result File**) or open the files by clicking (**Open**).

   Note: In this dialog box, you can only delete files you have attached during the current test run. You cannot delete files that were assigned to the test before the testing cycle/execution plan was started.

Note: You can perform the task described in this topic both on test level and on step level.

Recording Videos

When you execute tests in the **Manual Testing** window, you can record videos of the testing process. This is especially helpful when a test step fails and you want to outline when, where, and how the issue occurred.

The video will be attached to the test step where you started the recording from. For example: If you start the recording from step two and you continue with step three and four while the recording is yet running, the video will still be attached to step two.

Make sure that you have a Java Runtime Environment (JRE) installed and that the application is allowed to run. Otherwise you will not be able to record videos. You can download the JRE from *http://www.oracle.com/technetwork/java/javase/downloads/index.html*.

Note: Video recording is only supported on Microsoft Windows client machines.

To record a video:

1. Open the **Manual Testing** window. For more information, see *Manual Testing Window*.
2. Click (**Show Details**) on the left side to expand a test step.
3. Click (**Record Video**). The **Video Recording** window appears and the recording automatically starts.
4. When you are done, click **Stop Video Recording**.
5. Enter a **Result filename** and click **Upload File** to attach the video to the test step. You can also click **Save File** to save it to your local computer.
6. Click **Close**.
7. To view the attached video, click . The **Attachments** dialog box with a list of all attached files appears.
8. You can delete attached files by clicking (**Delete Result File**) or open the files by clicking (**Open**).

   Note: In this dialog box, you can only delete files you have attached during the current test run. You cannot delete files that were assigned to the test before the testing cycle/execution plan was started.

Note: You can perform the task described in this topic both on test level and on step level.

Attaching Result Files

When you execute tests in the **Manual Testing** window, you can attach result files to each test step.

To attach a result file:

1. Open the **Manual Testing** window. For more information, see *Manual Testing Window*.
2. Click (**Show Details**) on the left side to expand a test step.
3. Click (**Attach Result File**). The system file manager opens.
4. Browse for the file that you want to attach and confirm. The file is attached to the test step.
5. To view the attached file, click . The **Attachments** dialog box with a list of all attached files appears.
6. You can delete attached files by clicking (**Delete Result File**) or open the files by clicking (**Open**).

   Note: In this dialog box, you can only delete files you have attached during the current test run. You cannot delete files that were assigned to the test before the testing cycle/execution plan was started.

Note: You can limit the size of the result files that testers are allowed to upload. For more information, see *Setting the Maximum Size of Step Result Files*.

Note: You can perform the task described in this topic both on test level and on step level.

Assigning or Creating Issues

When you execute tests in the **Manual Testing** window, you can assign issues to each test step.

To assign an issue:

1. Open the **Manual Testing** window. For more information, see *Manual Testing Window*.
2. Click (**Show Details**) on the left side to expand a test step.
3. Click (**Assign or Create Issue**). The **Assign or Create Issue** dialog box appears.
4. If you want to assign an existing issue, click **Assign existing issue** and type the issue number in the **Issue ID** field.
5. If you want to create a new issue, click **Create new issue**. Enter information about the issue in the fields and select values from the lists.
6. Click **OK**. The issue is assigned to the test step.
7. To view the assigned issue, click . The **Issues** dialog box with a list of all attached issues appears.
8. If you click (**Open Issue**), you are directed to an external issue tracking tool or to Issue Manager. To delete an issue, click (**Delete Issue**).

   Note: In this dialog box, you can only delete issues you have assigned during the current test run. You cannot delete issues that were assigned to the test before the testing cycle/execution plan was started.

Note: When you create a new issue, Silk Central automatically creates links to all result files that are currently assigned to the step or to the test. These links display in the description of the issue in your issue tracking tool. This way, you can directly download result files out of your issue tracking tool.

Note: You can perform the task described in this topic both on test level and on step level.

Editing Version and Build

To edit the version and the build in the **Manual Testing** window, click (**Edit Version and Build**) in the overview area. If the button does not display, click (**Edit Settings**) and enable the action.

The tests of a testing cycle might not be done with only one build, but with several ones. This is especially probable if you have long testing cycles with many tests. For example: The tests 1 and 2 of a testing cycle are executed with build 315, test 3 of the same testing cycle is executed with build 316.

The configured build and version are stored for each test and display in all relevant grids within Silk Central.

When you set a build for a test, this build is automatically set for all tests ...

- that are assigned to you or that are not assigned to any specific tester, and
- that have not yet been executed (tests that have the status `Not Executed`), and
- that belong to the same project and product.

So you do not have to set the same build again and again for each test that you are executing subsequently.

Statuses of Tests and Test Steps

When you set the status of a test step in the **Manual Testing** window, the status of the test changes. The following table shows how Silk Central calculates the test status depending on the statuses of the test steps:

Status	Description
Passed	If all steps are passed, the test status is set to `Passed`. No status reasons from test steps are propagated to a test's status.
Failed	If all steps are executed and at least one step is failed, the test status is set to `Failed`. The status reason of the first failed test step is used as the failed status reason for the test.
Not Executed	As long as all steps are not executed, the test status is set to `Not Executed`. The status reason of the first not-executed test step is used as the not executed status reason for the test. If you change the status of at least one step, the test status is set to `In Progress`.
In Progress	Until every step is executed, the test status is set to `In Progress`.

You can also set the test status manually. In the overview area of the **Manual Testing** window, or in the test steps area of a test step, click (**Select Status**) beside the status icon and select a status. See *Status Reasons* for detailed information about defining reasons for each status.

Apart from the test's status, you can also set a test to being blocked. Setting a test to blocked is useful to indicate that the test cannot be continued due to certain restrictions, for example a problem with the IT infrastructure.

Note the following:

- A manually set test status overwrites the automatically calculated one.
- If you change a step status afterwards, the test status is calculated again.
- You can manually set a test status back to `Not Executed`. However, Silk Central will never automatically set back the test status to `Not Executed`.

- You can manually set a test status to `In Progress`, even if you do not change any step status.

Printing Manual Tests

You can print a form of each test and fill in the result, the used time, the status, and other information by hand.

To print a manual test:

1. In the menu, click **Home** > **My Dashboard**.
2. In the panel **Manual Tests Assigned to Me**, click (**View Manual Test Results**) in the **Actions** column. The **Manual Test Results View** appears.
3. Click **Print** or **Download as PDF**.

Testbook

The **Testbook** is a dashboard panel that gives you real-time updates about all activities that take place during manual testing. It shows you who did what and when in the different testing cycles and execution plans. The **Testbook** simplifies the coordination and collaboration among testers and test managers.

You can filter the entries by user, action, and testing cycle. The panel shows the activities of just one project. To configure a project for the panel, click (**Configure**) in the header of the panel. To view activities in other projects, you can add more panels. For more information on panels, see *Dashboard*.

For each entry the user name is displayed and (if available) the full name. For organizations that do not use meaningful user names, the full name of a user is better recognizable for the other users within a team.

On the **Manual Testing** window, you can post a message to the **Testbook** by clicking .

Entries older than 60 days are deleted automatically. To change this default setting, open the file `Conf\AppServer\TMAppserverHomeConf.xml` and edit the following setting:
`<MaximumActivityLogLifeTimeInDays>60</MaximumActivityLogLifeTimeInDays>`

The following activities are logged in the **Testbook**:

Icon	Activity	Icon	Activity
	Testing cycle started		Test added
	Testing cycle finished		Test started
	Testing cycle removed		Test finished
	Milestone added		Test reassigned
	Milestone edited		Test removed
	Milestone removed		Message posted

Offline Manual Testing

Offline Manual Testing allows you to download tests and complete them offline. It also allows you to upload your results back to Silk Central.

Testers use the **Manual Tests Assigned to Me** panel to download manual tests and upload results back to Silk Central. Test Managers use the **Offline Manual Testing Overview** panel to view and manage downloaded tests.

Note: A **Manual Testing** license is checked out when a test is downloaded for offline execution. The license is checked back in when results are uploaded.

Downloading Manual Tests for Offline Execution

This topic will show you how to download tests and enter the **Status**, **Reason** and **Results** while you are offline.

1. Go to **Home** > **My Dashboard**. Ensure that the **Manual Tests Assigned to Me** panel is visible.
2. Select one or more tests. Right click your selection and choose **Download Selected Manual Tests for Offline Execution**. You can also select a single test and choose **Download all Manual Tests of the Related Execution Plan for Offline Execution**.

   Tip: Make use of the **Rows per page** setting and the sorting and filtering capabilities to receive the list of tests that you need to select.
3. In the **Download Manual Tests for Offline Execution** dialog box, specify how you want the tests to be organized in Excel:
   - Create a separate worksheet for each test with a list of steps
   - Create a single worksheet with a list of tests without steps
4. Click **Download**. Download and save the Excel file.
5. Open the file and, depending in which format you downloaded the Excel file, enter the **Status** and the **Result** or **Used Time** for each step or for each test.
6. Save the file.

Uploading Offline Manual Test Results

Once your downloaded manual tests are complete, use the following procedure to upload the results to Silk Central.

1. Go to **Home** > **My Dashboard**. Ensure that the **Manual Tests Assigned to Me** panel is visible.
2. Click **Upload Offline Manual Test Results**. The **Upload Offline Manual Test Results** dialog box displays.
3. Click **Choose File** and browse to your Excel file. The **Open** dialog box displays.
4. Select the file to upload and click **Open**.
5. Click **Upload**. A dialog box will display indicating the status of the upload.
6. Click **OK**.

Analyzing Test Runs

This section describes how you can analyze test runs with Silk Central.

Analyzing Manual Test Results

When you have a test run in either a finished or unfinished context, use the **Manual Test Results** view to provide an easy to read result view for manual tests including all information like attached issues and attachments. All of this information is immediately visible. You can print and download a PDF version as well.

The **Manual Test Results** view contains a tree view on the left and a details view on the right. The tree view is based on context of the selection in which the result view was opened. For example, if you selected a test cycle, you could see all the assigned testers and their tests. Selecting a specific node updates the details view with the appropriate information of the selection.

To open the **Manual Test Results** view, click the **View Manual Test Results** icon ( ) of a test in nearly all contexts where you view manual tests. This includes manual execution planning, dashboard panels, activities pages, and the execution **Runs** grid and test **Runs** grid.

Analyzing Automated Test Results

View the test results of an execution plan run for an enhanced root cause analysis or compare the results of multiple runs to visualize distinctions of test statuses.

The **Test Results** view and the **Run Comparison** view provide an easy to read results overview with full drill-down capabilities. All information is included, like result files, thumbnail screenshots, messages, and stacktraces. This allows you to quickly analyze the root cause of failed test runs, especially because you can also compare the results of multiple runs side-by-side.

For example, you may be interested in performing the following tasks:

- Analyze the runs of all configurations within a configuration suite or within execution plans which represent configurations
- Compare runs of the same execution plan, for example to find out if any test statuses have changed
- Show all failed tests of an execution plan at once

To analyze the results of automated test runs:

1. In the execution **Runs** grid or the **Activities** > **Last Executions** grid, select one or more executions.
2. Click the **View automated test results** icon to analyze the results of a single execution, or right-click your selection and choose **Compare Automated Test Results** to compare multiple executions.
3. Click the icon at the top of the page or a specific status icon to access detailed information like result files, thumbnail screenshots, messages, and stacktraces.

Tip: Use the **Show failed tests only** check box to narrow down the displayed results.

Comparing Test Results of Multiple Test Runs

Compare the results of multiple runs of one test to visualize distinctions of test statuses.

The **Test Results** view provides an optimized results overview with full drill-down capabilities. All information is included, like result files, thumbnail screenshots, messages, and stacktraces. This allows you to quickly analyze the root cause of failed test runs, especially because you can compare the results of multiple runs side-by-side.

1. In the **Test Runs** grid (**Tests** > **Details View** > **<Test>** > **Runs**), select two or more runs.
2. Right-click your selection and choose **Compare Automated Test Results** to compare multiple test runs.
3. Click the icon at the top of the page or a specific status icon to access detailed information like result files, thumbnail screenshots, messages, and stacktraces.

Tip: Use the **Show failed tests only** check box to narrow down the displayed results.

Changing the Status of a Test Run

To manually change the status of a test run:

1. In the menu, click **Execution Planning** > **Details View**.
2. In the **Execution Plans** tree, select the execution plan that you want to edit.
3. Click the **Runs** tab.
4. Select the execution plan run. The test section of the **Runs** page lists the test runs.
5. Click on the **Run ID** of the test.

   The **Test Run Results** dialog box displays.

6. Click the **Details** tab.
7. Click **Change Status**. The **Change Status** dialog box opens.
8. Select the new status for the test run from the **New Status** list box.
9. Type an explanation for the manual status change in the **Comment** text box.

   Note: Inserting a comment is mandatory.

10. Click **OK** to confirm the status change.

Note: Status changes produce history changes. To view the history of all status changes for the test run, click the **Messages** tab in the **Test Run Results** dialog box.

Viewing Test Run Details

To view the details of a test run:

1. In the menu, click **Execution Planning** > **Details View**.
2. Select an execution plan in the **Execution Plans** tree.
3. Click the **Runs** tab.
4. In the **Test Runs** grid at the bottom, click the **Run ID** of the test for which you want to see details. The **Test Run Results** dialog box appears.
5. Click the **Details** tab.

Deleting Test Run Results

To delete the results of a specific test run:

1. In the menu, click **Execution Planning** > **Details View**.
2. In the **Execution Plans** tree, select the execution plan that you want to edit.
3. Click the **Runs** tab.
4. In the **Actions** column of the test run for which you want to delete results, click ✕.
5. Click **Yes** on the subsequent confirmation dialog box to complete the deletion.

Deleting Runs and Result Files of Execution Plans

You can decide if you want to delete runs (including result files as well as all other items and information that belong to the run) or if you want to delete just the result files of the runs. Result files can be files that require a lot of storage in the database, like videos or screen images. By deleting just the result files, you can clean up your database and free up storage space, but at the same time you keep all the essential information about your runs.

To delete runs or result files:

1. In the menu, click **Execution Planning** > **Details View**.
2. Right-click on an execution plan, a folder, a configuration suite, or a project in the **Execution Plans** tree and select **Delete Runs or Result Files**.
3. The **Delete Runs or Result Files** dialog box appears. Select what you want to delete:
   - Click **All runs (including result files)** to delete all runs with all result files.
   - Click **Result files of all runs** to delete just the result files but not the runs themselves.
4. Check **Within the time span from ... to ...** to delete just the runs or result files of a certain time period.
5. Check **Keep last run** to delete all runs (within the time span, if specified) except the last run.
6. Click **OK**.

Note: Runs of tagged builds will not be deleted with this action. To delete runs of tagged builds, untag the build in **Administration** > **Products, Version, and Builds** > **Products**.

Note: If there are many items to be deleted, there may be a slight delay for the UI to update while the items are removed from the database.

Note: If you right-click the project node to delete all runs or result files of the project, the runs or result files of all unassigned tests will be deleted as well, even though unassigned tests do not display in the **Execution Plans** tree.

Execution Plan Run Results

Tracking > **Activities** > **Last Executions** > **Run ID**

The **Execution Plan Run Results** dialog box lists the details of an execution plan run.

You can also access the dialog box from **Execution Planning** > **Details View**. Select the execution plan for which you want to see details, click the **Runs** tab, right click on the run and choose **View details**.

The dialog box shows detailed information about the following items:

Item	Description
Execution Plan Name	Name of the execution plan.
Execution Plan ID	Unique identifier of the execution plan.
Execution Plan Run ID	Identifier of the execution plan run.
Start Time	Time the run was started.
Duration	Time consumed to execute all included tests. Includes the duration of the setup and cleanup test and the time consumed to fetch automation files and code coverage, launch execution tools, and other tasks. For manual executions this is the time between starting and finishing the execution.
Execution Server	Execution server assigned to the execution plan.
Warnings/Errors	Amount of warnings and errors generated during the run.
Status	Displays the number of passed, failed and not executed tests in a bar graph.
Version/Build	Version and build of the product specified for the run. These either are set by the user for this execution plan, or are read from the build information file at execution time. If the build is tagged, it is marked bold and with .
Silk Test Classic AUT Host Name	Name of the Silk Test Classic AUT (Agent Under Test) Host.
Setup Test	The test that prepared the testing environment in anticipation of the test. Click on the name of the test to view or edit it. Click on the ID of the test run to open the **Test Run Results** dialog box.
Cleanup Test	The test that restored the testing environment to its original state following the test. Click on the name of the test to view or edit it. Click on the ID of the test run to open the **Test Run Results** dialog box.

The **Execution Plan Run Results** dialog box provides additional information about the files included and the messages generated during the execution plan run. It also lists all the assigned tests for the execution plan.

For manual tests click **Manual Test Results** to get a read-only version of the **Current Runs** page, with detailed information on the manual test.

The **Assigned Tests** section lists all tests that are assigned to this execution plan. Click on the name of a test to view or edit it, or click on the **Run ID** of a test to open the **Test Run Results** dialog box.

Test Run Results

Execution Planning > **Details View** > **Runs** > **<Execution Plan>** > **Assigned Tests** > **<Run ID>**

The **Test Run Results** dialog box lists run details of a test. You can access the dialog box from the following locations:

- **Tests** > **Details View** > **<Test>** > **Runs** > **<Run ID>**
- **Execution Planning** > **Details View** > **Runs** > **<Execution Plan>** > **Assigned Tests** > **<Run ID>**
- **Tracking** > **Activities** > **Last Executions** > **<Run ID>** > **Assigned Tests** > **<Run ID>**

The **Test Run Results** dialog box displays the following tabs:

Tab	Description
Details	Shows the details of the test run, including its **Duration**, **Execution Path**, the **Execution Plan Run ID** of the execution plan run that included the test run, any **Warnings/Errors**, and the run comment, if a comment is added to the run. This tab also allows you to change the status of the test run. This option is useful if you need to manually overrule the status of a test run. When a manual status change is performed, the details of the change are reflected in this tab's **Status**, **Status Changed On**, **Status Changed By**, **Previous Status**, and **Status Change Comment** fields.
Timeline	The **Timeline** tab shows a grid that allows easy result and error analysis of test runs by combining the following: • The structure of the test suite if an `output.xml` file is available including failure/error/warning count. • Incidents from the `output.xml` file. • Log entries and messages. • Result files. The entries are listed chronologically and the view contains check boxes allowing you to filter the different types of items. You can also access this tab from the **Analyze Results** and **Analyse Errors** actions in the **Test Run** grids. **Note:** The tab is displayed for all test types except for manual tests and Silk Test Workbench tests.
Specific	Only displayed for Silk Test Classic, Silk Performer, and manual tests. This tab includes details that are specific to the selected test type. For example, when a Silk Test Classic test is selected, this view includes the selected test case, test data, and any warnings that were displayed during the test run.
Files	Lists all files that were generated by this test run, along with file sizes. The names of Silk Test Classic .rex files act as download links. Once downloaded, these files can be viewed directly in a text editor. The upper table lists files that are associated with the test, such as result files or manually uploaded files for manual tests. The lower table lists files that are associated with the execution plan, for example execution log files or code analysis results.

Tab	Description
	Click **Download All Files** to download all result files generated by the test run, as a zipped package. For Silk Test Workbench, click the `result.stwx` file to open Silk Test Workbench in context of the result file. For Silk Test Workbench, click the `error.png` to see the last screenshot for a Visual Test when a playback error occurs.
Messages	Lists all messages that were generated by this test run, along with the severity of the messages. Messages that are associated with an execution plan as a whole, and not to one of the individual tests, can be viewed in **Executions** > **Activities** > **Messages**
Success Conditions	Only displayed for automated tests. This tab shows all the success conditions that are defined for the test in **Tests** > **Details View** > **<Test>** > **Properties** during the test planning process, and the result values from the execution run. Success conditions are used to determine if a test is `Passed` or if it has `Failed`.
Data Driven	Only displayed for data-driven tests using the option of having a single test for all data rows of the data set. This tab lists the status of each instance (data row) run of the test. Clicking an instance brings up another instance of the **Test Run Results** dialog box with run details of the selected instance.
Attributes	Any attributes that are configured for the test.
Parameters	Any parameters that are configured for the test.

The following table lists the UI elements that are used to step through the test results of an execution run. These elements are only visible when accessing the **Test Run Results** dialog box from an execution plan.

Item	Description
Skip Passed	Used to determine which test run results should be displayed when browsing using the **Previous Result** and **Next Result** buttons. Checking this option only displays tests with a status other than `Passed`.
< Previous Result	Jumps to the result details of the previous test in the selected execution plan run.
Next Result >	Jumps to the result details of the next test in the selected execution plan run.

Viewing Execution Activities for Data-Driven Tests

To view execution activities for data-driven tests:

1. In the menu, click **Execution Planning** > **Details View**.
2. Select an execution plan that is based on a data-driven test.
3. In the menu, click **Tracking** > **Activities**.
4. Click the **Run ID** of the relevant execution plan.
5. In the **Assigned Tests** table, click the **Run ID** of a data-driven test.

   Note: If you are running a multiple data-driven test, you will see one test for each data row in your data source.

   The results page for that particular test opens.

6. Click the **Data Driven** tab. Here you can view all instances of the test that were executed.

   Note: The test's data-driven properties are listed on the **Details** page in the **Data-driven Properties** table.

7. Click an instance name to view test run details for that specific instance.

   Note: If you are working with multiple data-driven test instances, a separate instance will be created for each data row in your data source.

8. Click the **Parameters** tab to view the data source values that were used during this specific test run.

Execution Runs Page

Execution Planning > **Details View** > **<Execution Plan>** > **Runs**

The **Runs** page shows statistics regarding all the runs of the selected execution plan.

For configuration suites, the page displays all runs of the included configurations.

For testing cycles, the page displays all runs of the included execution plans and folders.

The page is split into two separate sections, one listing the execution plan runs, and the second listing the test runs for the execution plan run selected in the first section.

The grids are customizable: You can display or hide columns, adjust the width, and drag the columns around to change their order. Click on the columns to sort, group or filter the content in the grids.

To open the **Execution Plan Run Results** dialog box, right-click on a run and choose **View Details**. To compare multiple execution plan runs, use **Ctrl+Click** or **Shift+Click** to select the runs. Right-click on your selection and select **Compare Automated Test Results**.

The execution plan runs section lists the runs of the selected execution plan. Use the menu bar on the bottom of this section to define how many rows to display per page and to navigate through the pages. The page shows the following columns for each run:

Column	Description	
Actions	Actions that you can perform on the execution plan.	
	Delete Runs	Click to delete the results of this run. When you delete the results for selected runs, Silk Central removes the runs from the **Runs** page. The runs are grayed out until the background process completes the deletion. Alternatively, press `Delete` to delete the test run results. For tagged builds, you have to verify that you want to remove the results.
	View Manual Test Results (only for manual tests)	Click to analyze the results of a single manual test run on the **Manual Test Results** page.
	View automated test results (only for automated tests)	Click to analyze the results of a single automated test run on the **Test Results** page.
ID	The identifier of the execution plan.	

Column	Description
Execution Plan	The name of the execution plan that was executed. This column is only displayed for configuration suites.
Status	Status summary of the run. A bar lists the amount of passed, failed, and not executed tests. The run status of each assigned test is shown in the second section of the page.
Run ID	Identifier of the execution plan run. Click to access the results of the run.
Keywords	Keywords assigned to the execution plan.
Executed By	Name of the execution server on which the run was executed. For manual tests the name of the person who executed the run is listed.
Product	The application under test.
Version	The version is either set by the user for this execution plan, or is read from the build information file at execution time. This information can be set in **Administration** > **Products, Versions, and Builds** > **Products**.
Build	The build is either set by the user for this execution plan, or is read from the build information file at execution time. This information can be set in **Administration** > **Products, Versions, and Builds** > **Products** . If the build is tagged, it is marked bold and with .
Start Time	Time the run started.
Duration	Time consumed to execute all included tests. Includes the duration of the setup and cleanup test and the time consumed to fetch automation files and code coverage, launch execution tools, and other tasks. For manual executions this is the time between starting and finishing the execution.
Errors	Number of errors that occurred in the run.
Warnings	Number of warnings that occurred in the run.
Start Type	Shows how the test run was started. Manually, through a Web Service, or from a schedule.
Starter Name	Name of the schedule, tester, or Web Service user.
Start Scope	The scope specified in the **Run** dialog box.
Execution Plan Parent	The name of the execution plan parent.
Run Comment	You can use this column to add information to the run. To edit the comment, right-click on the run and select **Edit Run Comment**.

The **Test Runs** section lists the test runs for the selected execution plan run. Use the menu bar on the bottom of this section to define how many rows to display per page and to navigate through the pages. The page shows the following columns for each run:

Column	Description
Actions	Actions that you can perform on the test run. **View or download results**: If the test, to which the run belongs, is of a test type that generates result files, click on the icons to view or download the result files. **New Issue**: Click to open the **New Issue** dialog box and create a new issue for the test. **Assign Existing Issue**: Assign an issue from an externally-configured issue-tracking system to the test. **View Manual Test Results**: Click to view the **Current Run** page in read-only mode.
Status	Status summary of the run. For a single test a single status is shown. A bar lists the amount of passed, failed, and not executed tests for a test package or suite node.
Status Reason	The reason why a specific test run has the status **Passed**, **Failed** or **Not Executed**.
Run ID	Identifier of the test run. Click to open the **Test Run Results** dialog box.
ID	Identifier of the test. This column is hidden by default.
Test	Name of the test. Click to access the test in **Tests** > **Details View**. The icon corresponds to the test type.
Version	The version the run was executed against.
Start Time	Date and time the run started.
Duration	Duration of the test run.
Executed By	Name of the execution server on which the run was executed. For manual tests the name of the person who executed the run is listed.
Issues Found	Displays the amount of issues that are assigned to the test run. When no issues are assigned to the test run, the column is empty. Click on the link to access the issue in the **Issues** page of **Tests** > **Details View**.
Errors	Number of errors that occurred in the run.
Warnings	Number of warnings that occurred in the run.
Build	The build the run was executed against.
Run Comment	For Silk Performer test runs, Silk Performer uses this column to add information to the test run when uploading results. For all other test types, you can use this column to add information to the run. To edit the comment, right-click on the run and select **Edit Run Comment**.

Current Run Page

Execution Planning > **Details View** > **<Execution Plan>** > **Current Run**

Note: The **Current Run** page displays the active manual test run, until the test run is finished. For manual tests that are assigned to a testing cycle, this page is renamed to **Run** page. In such a case, the **Run** page continues to display the run, after the run is finished.

To access the **Current Run** page of an execution plan, select the execution plan in the **Execution Plans** tree and click the **Current Run** tab.

The **Current Run** page shows information about the active manual test run. The page features two grid views, **Assigned Tests** and **Test Steps**. **Assigned Tests** shows information about the active manual test run, and **Test Steps** shows information for each of the steps in the manual test. You can filter the test runs in the **Assigned Tests** view by selected columns. When multiple runs of a manual test are in progress, the one first started is shown. The **Test Details** and **Step Details** views show additional information.

The grids are customizable: You can display or hide columns, adjust the width, and drag the columns around to change their order.

Click **Reload** to refresh the **Current Run** page. Click **Close** to go back to the page you came from.

Execution Plan Run Details

This area displays detailed information about the run like the ID, the name, the version and build, and so on. The area is collapsed by default. Click the arrow on the top-right corner to expand it.

Assigned Tests

This area provides the following information for the manual test run:

Columns	Description	
Actions	Actions that can be performed during the run. Some of these actions are not available for data-driven tests. The following actions can be performed:	
	New Issue	Create a new issue for the test.
	Assign Existing Issue	Assign an issue from an externally-configured issue-tracking system to the test.
	Continue Manual Test	Click to open the **Manual Testing** window.
#	The order of the test in the execution plan run.	
ID	The identifier of the test. This column is hidden by default.	
Test	The name of the test. Click on the name to view the test, or to perform an action on the test.	
Status	The current status of the test.	
Status Reason	The reason why a specific test run has the status **Passed**, **Failed** or **Not Executed**.	
Blocked	Shows if the test is blocked/unblocked.	
Executed By	The user that last worked on this test execution. For example entering step results, adding attachments, and so on.	

Columns	Description
Used Time [hh:mm]	The actual execution time. Click the field to note how long it actually took to execute the test. Type in the time in the `hh:mm` format. If you type in just a number, it will be considered to be hours. When the run or testing cycle is finished, the entered time will be displayed in the **Duration** column.
Version	The version the run was executed against.
Build	The build the run was executed against.

Test Steps

This area provides the following information for each test step:

Columns	Description	
Actions	Actions that can be performed during the run.	
	New Issue	Click to display the **New Issue** dialog box allowing you to associate an issue with the current step.
	Assign Existing Issue	Click to open the **Assign Existing Issue** dialog box which allows you to associate an existing issue with the current step.
#	Order of the step in the test.	
Step Name	Name of the step. Click to access the step in **Tests** > **Details View** > **Steps**.	
Status	Execution status of the step.	
Reason	The reason why a specific test step has the status **Passed**, **Failed** or **Not Executed**.	
Result	Result of the step.	

Tip: You can hide the **Test Steps** view by clicking on the arrows in the top-right corner.

Test Details

This area displays the following information for the selected manual test: The **Test Name**, the **Planned Time**, the **Description**, and the assigned **Issues** and **Attachments**.

Click the links to open the issues or download the attachments.

Step Details

This area displays the following information for the selected step: The **Step Name**, the **Action Description**, the **Expected Result**, the **Result** as well as the **Result Files** and the **Issues** that were attached to the selected test.

Click the links to open the issues or download the result files.

Tip: You can hide the **Step Details** view by clicking on the arrows in the top-right corner.

If other execution plan runs are started while the **Current Run** page is open, a note displays, stating that newer runs are available. You can see information on those runs in the **Activities** page.

For automated tests, the **Current Run** page shows the progress of the execution.

Working with Silk Performer Projects

Silk Performer is fully integrated with the test and execution functionality of Silk Central. Silk Performer projects can be integrated into Silk Central tests and directly executed through Silk Central. This allows for powerful test-result analysis and reporting. It also enables unattended testing, which means tests are run automatically by Silk Central based on pre-configured schedules.

Refer to the Silk Performer Help for details on configuring the integration of Silk Performer with Silk Central.

Silk Performer project files can be directly opened in Silk Performer from Silk Central, where scripts and settings can be edited. Edited Silk Performer projects can subsequently be checked back into Silk Central to make them available for future test executions.

Silk Central provides information on execution plan run properties during Silk Performer test executions. Use the `AttributeGet` methods to access execution plan run properties in the Silk Performer script. You can access the following properties in the script:

- `#sctm_execdef_name`
- `#sctm_execdef_id`
- `#sctm_product`
- `#sctm_version`
- `#sctm_build`
- `#sctm_keywords`
- `#sctm_test_results_dir`
- `#sctm_test_name`
- `#sctm_test_id`

Note: The term Project is used differently in Silk Performer than it is in Silk Central. A Silk Performer project, when uploaded to Silk Central, becomes the core element of a Silk Central test. Silk Central projects are high-level entities that may include multiple Silk Performer projects, tests, execution plans, and requirements.

Downloading Silk Performer Projects

Whereas opening a Silk Performer project may involve checking out a Silk Performer project from a source-control tool, editing the project in Silk Performer, and checking the project back into Silk Central, *downloading* a project involves downloading a copy of a project and working with it independently of Silk Central. Changes you make to downloaded projects are not automatically migrated back to Silk Central.

To download a Silk Performer project:

1. In the menu, click **Tests** > **Details View** .
2. In the **Tests** tree, select a Silk Performer test.
3. Click the **Properties** tab.
4. Scroll down to the **Silk Performer Test Properties** section.
5. Click . A file download dialog box displays, asking you to confirm that you wish to download the specified Silk Performer project to your local system.
6. Click **Save** to open the file in Silk Performer. If not already open in the background, Silk Performer is invoked.
7. The **Select Target Directory** dialog box displays, loaded with the default directory path to which the specified Silk Performer project will be saved. If you approve of the specified pathname, click **OK**, otherwise click **Browse** to specify an alternate path.

Note: Even if you have configured source-control integration, you will not be prompted to check out the Silk Performer project from your source-control system because you are working with this file independently of Silk Central.

Note: Silk Performer projects utilized by Silk Central can also be downloaded directly from the Silk Performer user interface. For additional information, refer to the Silk Performer documentation.

Opening Silk Performer Projects

To open a Silk Performer project from Silk Central:

1. In the menu, click **Tests** > **Details View** .
2. In the **Tests** tree, select a Silk Performer test.
3. Click the **Properties** tab.
4. Scroll down to the **Silk Performer Test Properties** section.
5. Click . A file download dialog box displays, asking you to confirm that you wish to open the specified Silk Performer command file (.spwbcmd) in Silk Performer.
6. Click **Open** to open the file in Silk Performer. If not already open in the background, Silk Performer is invoked. The **Select Target Directory** dialog box opens, loaded with the default directory path to which the specified Silk Performer project will be saved.
7. If you approve of the specifed pathname, click **OK**, otherwise click **Browse** to specify an alternate path.
8. If you have configured source-control integration for Silk Central, for example StarTeam, you are presented with a login screen for your source-control client. Enter valid user connection settings and click **OK** to continue.

Note: Silk Performer projects utilized by Silk Central can also be opened directly from Silk Performer. For additional information, refer to the Silk Performer documentation.

Executing Attended Silk Performer Tests

Attended tests are Silk Performer tests that are executed manually in Silk Performer and are not executed automatically based on a pre-defined schedule in Silk Central.

Note: To use Silk Central's data-driven test functionality with Silk Performer scripts, data sources with column names matching the corresponding Silk Performer project attributes must be used in conjunction with `AttributeGet` methods (password attributes cannot be passed and will always use the values that are specified in the script).

To execute an attended test run in Silk Performer:

1. In the menu, click **Tests** > **Details View** .
2. In the **Tests** tree, select a Silk Performer test.
3. Click the **Properties** tab.
4. Scroll down to the **Silk Performer Test Properties** section.
5. Click . A file download dialog box displays, asking you to confirm that you wish to run the specified Silk Performer command file (.spwbcmd).
6. Click **Open** to open the project in Silk Performer. If not already open in the background, Silk Performer is invoked. The **Select Target Directory** dialog box displays, loaded with the default directory path to which the specified Silk Performer project will be saved.
7. If you approve of the specified pathname, click **OK**, otherwise click **Browse** to specify an alternate path. The **Silk Performer Workload Configuration** dialog box opens with all of the workload settings that are associated with the Silk Performer project.
8. Edit the workload settings as required and click **Run** to begin the test and monitor the test results with Silk Performer.

Note: Clicking **Run** without editing any workload settings executes the Silk Performer test in exactly the same way as if the test had been executed directly from Silk Central as an unattended test.

Editing Silk Performer Test Properties

Note: To use the data-driven test functionality of Silk Central with Silk Performer scripts, you have to use data sources with column names that match the corresponding Silk Performer project attributes in conjunction with `AttributeGet` methods.

To edit Silk Performer test properties:

1. In the menu, click **Tests** > **Details View** .
2. In the **Tests** tree, select a Silk Performer test.
3. Click the **Properties** tab.
4. Scroll down to the **Silk Performer Test Properties** section.
5. Click **Edit Silk Performer Test Properties**.
6. Proceed with the configuration of your Silk Performer test.

Analyzing Silk Performer Test Results

Performance Explorer enables in-depth analysis of Silk Performer test results. The **Analyze Results** option downloads only selected results, in contrast to “Downloading result packages”. To assist you in analyzing the results of your optimization efforts, Performance Explorer even allows you to compare statistics from multiple test runs side-by-side in cross load-test reports.

The results of tests that are run using Silk Central can be automatically loaded into Performance Explorer through commands on the **Runs** page in the **Tests** area.

For full details on using Performance Explorer and integrating Performance Manager with Silk Central, refer to the Performance Explorer documentation.

To open Silk Performer test results in Performance Explorer:

1. In the menu, click **Tests** > **Details View** .
2. Select the test you are interested in viewing.
3. Click the **Runs** tab.
4. Click in the **Actions** column of the test execution for which you want to download results. A **File Download** dialog box displays, showing you the name of the Performance Explorer command file, `.sppecmd`, that you are about to download.
5. Click **Open** to open the results in Performance Explorer. Alternatively, you can click **Save** to save the results locally.
6. If not already open in the background, Performance Explorer now opens, connected directly to your Silk Central installation, and fetches the results of the selected execution run.

Note: To prepare for a cross load-test report that compares the results of multiple executions in a single report, you may download the results of additional executions from the **Runs** page. Additional execution results are displayed in the existing instance of Performance Explorer on the Performance Explorer Silk Central tab. For additional details on cross load-test reports, refer to the Performance Explorer documentation.

Downloading Silk Performer Test Result Packages

Downloading result packages is the ideal option if you want to analyze the complete results set of a test run, or if you want to download the complete results set for offline analysis. Because result packages often include large TrueLog On Error files, result packages can be compressed and downloaded to your local hard drive as `.lrz` files. Downloading results locally can also be useful when you are working from a slow Internet connection.

To download Silk Performer test results:

1. In the menu, click **Tests** > **Details View** .
2. In the **Tests** tree, select a Silk Performer test.
3. Click the **Runs** tab.
4. Click in the **Actions** column of the test execution for which you want to download results. A **File Download** dialog box displays, showing you the name of the compressed results package file, `.ltz` that you are about to download.
5. Click **Open** to open the results in Performance Explorer. Alternatively, you can click **Save** to save the results locally.
6. If not already open in the background, Performance Explorer now opens. You are presented with an **Import Project** dialog box that indicates the target directory to which the results will be saved. Click **OK** to accept the default path, or click **Browse** to select an alternate path. The downloaded results are then displayed in Performance Explorer.

   Note: If you accept the default projects directory where result packages are typically stored, which we generally recommend, then the results will be stored with all otherSilk Performer results and will be readily accessible through the Performance Explorer `Add Loadtest Results` command.

Uploading Silk Performer Test Results

Once you have completed running an attended test in Silk Performer, you can upload the test results to Silk Central and associate the results with a test.

To upload results from an attended Silk Performer test:

1. Run an attended Silk Performer test.
   For additional information, see *Executing Attended Silk Performer Tests*.
2. When the test is complete, select **Upload Results to Silk Central** from the **Results** menu.
   The **Login** screen of the **Upload Results to Silk Central** wizard displays.
3. Enter your **Password** and click **Next**.

   Note: Because this is an attended test, the wizard already knows the appropriate hostname and username of the test to which these results are to be uploaded.
4. If not already selected by default in the project list, select the Silk Central project to which you want to upload the Silk Performer results.
5. If not already selected by default in the tree list, select the test to which you want to upload the results. Click **Next**.

   Note: You can right-click in the tree and use the commands on the context menu to create a new test, child test, test folder, or child test folder to which the results can be saved.
6. On the subsequent screen you can specify Version and Build numbers for the assigned Product to which the uploaded results belong. Also specify the Silk Performer test result status, for example `Passed`, `Failed`.

   Note: If any errors occurred during the test run, the test result status is set to `Failed` by default.
7. Click **Finish** to upload the results. The uploaded results are displayed in **Tests** > **Details View** > **<Silk Performer Test>** > **Runs**.

Silk Test Classic Tests

This section describes how to execute tests in Silk Test Classic.

Automated Execution of Silk Test Classic Tests

All tests within an execution plan use the same Silk Test Classic instance for tests. The Silk Test Classic GUI is opened once with the first Silk Test Classic test execution and is closed automatically after the last

Silk Test Classic test execution. Each Silk Test Classic test execution produces its own results. If for any reason the Silk Test Classic GUI closes during a test, it will reopen automatically with the next Silk Test Classic test execution.

Automated Execution of Data-Driven Silk Test Classic Testcases

If the **data driven** check box is checked in Silk Test Classic test properties, each Silk Test Classic test will be repeated once for each data row in the external datasource. By default, plan-based execution mode is used for data driven tests. This means that the results of all data rows will be listed under a single node in the `.res` result file. If execution mode is switched to script-based data driven in `SccExecServerBootConf.xml`, a result node will be created in the `.res` result file for each data row.

Specifying Agent Under Test (AUT)

When a Silk Test Classic agent cannot run on the same machine as the Silk Central execution server, for example when tests are run on platforms other than Windows, the hostname and port may be specified by the Silk Test Classic AUT Hostname setting in the **Deployment** page of an execution plan. If the setting has not been defined, Silk Test Classic default values are used, for example from `partner.ini`. The syntax for AUT is `hostname:port`. The agent must be started manually prior to test execution and configured to listen at the specified port. By default, the TCP/IP protocol is used for communication between Silk Test Classic instances and Silk Test Classic agents. Ensure that both programs have been configured to use the same protocol.

Note: Be careful when you have multiple execution servers assigned to an execution plan as Silk Test Classic agents can only work with one Silk Test Classic instance at a time.

Silk Test Classic Time-out Settings

If you have Silk Test Classic test cases that require more than 1 hour to complete, you must adjust the time-out settings in Silk Central. Otherwise, Silk Central assumes that something has gone wrong in the execution and terminates Silk Test Classic. For details about setting the Silk Test Classic time-out, see the *Administration* topics in this Help.

Silk Test Classic Logs

The RMS log file in Silk Test Classic is used to log data for each test case as test runs progress. Three types of data records are written to this file: status, memory and user records. By monitoring this file, the RMS Remote Agent has a means of determining the progress of each test run.

You can write your own comments into the user records of the log file by executing the `PrintToRMSLog` 4Test function.

Examples:

```
PrintToRMSLog ("Error", "An intended error")
PrintToRMSLog ("Info", "testcase sleep1 started")
PrintToRMSLog ("Warning", "TestCase 1 started a second time")
```

Definition of user function in `rms.inc`:

```
PrintToRMSLog (STRING sMessageType, STRING sUserMessage)
```

Writes to the log file in the following format:

```
U|{sTestCaseName}|{sScriptName}|{sArgStr}|{sUserMessage}|{sMessageType}
```

Tracking

The **Tracking** area provides project-level information including **Activities**, **Cross-Project Activities**, **Project Overview Report**, and **Quality Goals**.

Activities

This section explains how to manage upcoming, current, and recently-executed test runs.

Deleting Last Executions Runs

To delete a run from the **Last Executions** list:

1. In the menu, click **Tracking** > **Activities**.
2. In the **Last Executions** area of the **Activities** page, right-click the test run you want to delete and select **Delete Run Results**.
3. Confirm the deletion by clicking **OK**.

Displaying or Hiding Columns on the Activities Page

To display or hide columns on the **Activities** page:

1. In the menu, click **Tracking** > **Activities**.
2. Right-click a column header.
3. Expand the **Columns** submenus to view all the columns that are available in the project.
4. Select the check boxes of all the columns that you want to have displayed. Your column-display preferences will be saved and displayed each time you open the active project.

Entering Issues From the Activities Page

New issues can be entered directly on the **Activities** page.

To enter an issue from the **Activities** page:

1. In the menu, click **Tracking** > **Activities**.
2. In the **Last Executions** area, click the **Run ID** of the relevant execution plan to view test-execution results.

   Each test associated with the execution run is listed in the **Assigned Tests** table at the lower part of the view.
3. In the **Actions** column of the test to which you want to associate the issue, click **New Issue**.
4. Proceed with defining the issue.

Filtering Test Runs on the Activities Page

You can filter the views on the **Activities** page based on column values. You can specify filter strings to be applied to:

- Text-based data fields.
- Calendar filters (using **Before**, **After** or **On** operators) for date-based fields.
- Numerical operators (**>**, **<**, and **=**) for number-based fields.

Filtering Text-Based Values on the Activities Page

1. In the menu, click **Tracking** > **Activities**.
2. Right-click the header of the text-based column that the filter is to be based on.
3. Expand the **Filter** submenu on the context menu to display the **Filter** text box.
4. Enter a text string into the text box.
5. Press **Enter**. All entries that match the filter criteria are dynamically displayed in the filtered list.

Filtering Date-Based Values on the Activities Page

1. In the menu, click **Tracking** > **Activities**.
2. Right-click the header of the date-based column that the filter is to be based on.
3. Hold your cursor over **Filter** on the context menu to display the **Before**, **After**, or **On** submenu.
4. Choose from the following:
   a) Hold your cursor over **After** to define a date before which (and including) all entries should be excluded.
   b) Hold your cursor over **Before** to define a date after which (and including) all entries should be excluded.
   c) Hold your cursor over **On** to exclude all entries except those that have the specified date.

   The calendar tool displays.
5. Select a date using the calendar tool (or click **Today** to specify today's date).

   Tip: You must explicitly click a date on the calendar tool or press **Enter** to activate date-based filtering changes.

   All entries that match the filter criteria are dynamically displayed in the filtered list.

Filtering Number-Based Values on the Activities Page

1. In the menu, click **Tracking** > **Activities**.
2. Right-click the header of the number-based column that the filter is to be based on.
3. Expand the **Filter** submenu on the context menu to display the **> (greater than)**, **< (less than)**, and **= (equals)** operators.
4. Choose from the following:
   a) Enter a number in the **>** text box to define a number less than which (and including) all entries should be excluded.
   b) Enter a number in the **<** text box to define a number greater than which (and including) all entries should be excluded.
   c) Enter a number in the **=** text box to exclude all entries except those that have the specified number.

   Note: Number values are rounded to two decimal places.
5. Press **Enter**. All entries that match the filter criteria are dynamically displayed in the filtered list.

Filtering Boolean Values on the Activities Page

1. In the menu, click **Tracking** > **Activities**.
2. Right-click the header of the boolean-based column that the filter is to be based on.
3. Expand the **Filter** submenu on the context menu to display the available values.
4. Click one of the **Yes** or **No** option buttons. All entries that match the filter criteria are dynamically displayed in the filtered list.

Filtering Values Using a Predefined List on the Activities page

1. In the menu, click **Tracking** > **Activities**.
2. Right-click the header of the column that has a predefined filter value that the filter is to be based on.
3. Expand the **Filter** submenu on the context menu to display the **Filter** text box.
4. Check the check boxes of the filter values that you want to use. All entries that have one of the selected criteria will be displayed.

Grouping Test Runs on the Activities Page

Beyond simply sorting by column, you can chunk entries into groups to facilitate viewing. Groups are based on commonly-shared values within the column that grouping is based on.

Applying Groups to Test Runs on the Activities Page

To group entries on the **Activities** page:

1. In the menu, click **Tracking** > **Activities**.
2. Right-click the header of the column that the sort is to be based on.
3. Select **Group by This Field**.

   Entries are then organized into groups based on commonly-shared values within the column you have selected.

Removing Grouping from Test Runs on the Activities Page

To remove grouping:

1. In the menu, click **Tracking** > **Activities**.
2. Right-click any column.
3. Uncheck the **Show in Groups** check box.

Removing Activities Filters

Note: Hiding a column removes all filters that have been applied to the column.

To remove one or more filters:

1. In the menu, click **Tracking** > **Activities**.
2. Right-click the header of the column that has the filter you want to remove.

   Note: You can identify filtered columns by their titles, which are displayed in bold, italic text.
3. Do one of the following:
   a) To remove a specific filter: Uncheck the **Filter** check box.
   b) To remove all filters: Select **Reset Filters**.

Reordering Columns on the Activities Page

To reorder columns on the **Activities** page:

1. In the menu, click **Tracking** > **Activities**.
2. Select the column header of the column you want to move.
3. Drag the column to the desired position and release it.

   Your column-order preferences will be saved and displayed each time you open the active project.

Resizing Columns on the Activities Page

To adjust the width of columns on the **Activities** page:

1. In the menu, click **Tracking** > **Activities**.
2. Select the vertical column-header divider of the column you want to adjust.
3. Drag the column boundary to the desired position and release it.

   Your column-width preferences will be saved and displayed each time you open the active project.

Restoring Default Activities Page View Settings

Restoring default view settings resets all user-defined settings, which are column order, column width, shown/hidden columns, applied filters, sorting, and grouping, for the current project.

To restore default view settings:

1. In the menu, click **Tracking** > **Activities**.
2. Right-click any column header.
3. Select **Reset View**.

Sorting Test Runs on the Activities Page

To sort test runs on the **Activities** page:

1. In the menu, click **Tracking** > **Activities**.
2. Right-click the header of the column you want the test runs to be sorted by.
3. Select **Sort Ascending** to have the test runs sorted in ascending order or select **Sort Descending** to have the test runs sorted in descending order. Your sort preferences will be saved and displayed each time you open the active project.

Activities Page

Tracking > **Activities**

The **Activities** page offers a centralized location from which you can manage upcoming, current, and recently executed test runs for a project. The grid views on the **Activities** page offer filtering, sorting, and grouping options that are configurable for each user separately. You can display or hide columns, adjust the width of columns, and move columns around using click and drag.

The **Activities** page is split into three sections: **Next Executions**, **Current Executions**, and **Last Executions**. The grid views can be resized by dragging the separators between the views.

Context-sensitive menu commands are available for each test run. These commands enable you to link directly to listed execution plans, continue manual tests, manage test-run results, and more.

The **Activities** page makes it easier to identify match points between execution plans and to find specific execution plan information. Standard Windows keyboard shortcuts can be used to select test run entries, making it easy to select and manipulate specific sets of execution plans and test results. Sorting, grouping, and filtering functions are available through context-menu commands to help you better organize and group test runs. All of your view-customization preferences are saved along with your project and will be available to you each time you visit the **Activities** page.

Note: Data on the **Activities** page is not automatically refreshed. Click **Reload** near the paging buttons at the lower part of each view to refresh the page's contents.

Note: You can use `Ctrl + Click` to select multiple queued executions and abort them all with one click.

Next Executions

The **Next Executions** view lists the execution plans that are scheduled to run in the future. To enhance performance when you have numerous execution plans, only the upcoming 50 execution plans are displayed. You can access additional future execution plans by using the available filtering features. To edit an execution plan, right-click the execution plan and choose **Go to Execution Plan** or click on the arrow to the left of the name of the execution plan. This takes you to the **Executions** area where you can view and edit the details of the execution plan.

By default, all execution plans are sorted by **Start Time**. Columns in the **Next Executions** view can not be sorted or grouped.

Next Executions view can be collapsed and expanded by clicking the double-arrow button on the right-hand side of the view's title bar.

For each execution plan, the **Next Executions** view displays the following columns:

Column	Description
ID	Identifier of the scheduled execution plan. This column is hidden by default.
Execution Plan/Folder	Name of the scheduled execution plan or folder.
Keywords	Keywords that are assigned to the scheduled execution plan.
Manual Testers	For manual tests, this column contains the name of the manual tester that is assigned to the test. This column is blank when no manual testers are assigned to the test.
Priority	The priority that has been assigned to the execution plan.
Start Time	Scheduled start time of the test run.
Execution Plan Parent	The configuration suite, folder, or testing cycle in the context of which the execution plan is executed. Click to access the suite or folder in the **Execution Plans** tree. If the execution plan is not included in a configuration suite or folder, nothing is displayed.

Current Executions

The **Current Executions** view lists the execution plans that are currently running (both automated and manual test runs).

To abort an execution plan that is currently in progress, click **Abort** in the **Actions** column of the execution plan. To view or edit an execution plan, right-click the execution plan and select **Go to Execution Plan** or click on the arrow to the left of the name of the execution plan. To view the execution's progress, right-click the automated execution plan and select **View Details** or click the execution plan's **Run ID/Task ID** link.

As long as a manual test remains open, the corresponding execution plan remains in the list of **Current Executions** with a status of **Pending**. Click **Continue Manual Test** in the **Actions** column to open the **Manual Testing** window.

To view the results of a manual test, right-click the manual execution plan and select **View Details**, or click the execution plan's **Run ID/Task ID** link, to open the **Results for Execution Plan** page. From there, click the name of the manual test in the **Assigned Tests** section to open the **Results** dialog box. Detailed results of the manual test are displayed there. Back on the **Results for Execution Plan** page, click **Manual Test Results** to go to **Manual Test** view , where information about the status of the assigned manual test is available.

Page views of current executions are broken into views of 20 execution plans each. You can advance through pages using **First**, **Last**, **Next**, and **Previous** located in the lower part of the **Current Executions** view. Or you can type a page number into the **Page** text box and press `Enter`.

For each execution plan, the **Current Executions** view displays the following columns:

Column	Description
Actions	You can perform the following actions on the execution plan: **Abort** Click to cancel the current execution. Alternatively, press `Delete`. When you

Column	Description
	abort executions, these executions are grayed out until the background process completes the deletion. **Note:** If the execution is part of a testing cycle the abort action is disabled. The icon and the entry in the context menu are grayed out and such runs are ignored when you abort multiple runs. **Continue Manual Test** Click to open the **Manual Testing** window. **View Manual Test Results** Click to view the **Current Run** page in read-only mode.
ID	Identifier of the execution plan. This column is hidden by default.
Execution Plan	Name of the execution plan.
Run ID/Task ID	Manual tests receive a **Run ID** when they are executed. When the manual test is completed, the **Run ID** carries over to the **Last Executions** view. Automated tests receive a **Task ID** when they are executed. The **Task ID** is not carried over to the **Last Executions** view. Completed execution plans receive a **Run ID** in the **Last Executions** view.
Status	Status of the active execution plan or manual test. For automated tests, the status is indicated with a text-based value. For manual tests, the status is indicated with a colored histogram. Automated-test statuses are described textually and can be filtered. Manual tests can be filtered by checking relevant properties on the **Filter** submenu.
Keywords	Keywords that are assigned to the execution plan.
Executed By	• For manual tests, this column displays the users who are assigned to perform the manual test. This column is blank when no manual testers are assigned to the test. • For automated executions, this column displays the name of the execution server.
Priority	For automated execution plans, when more than one execution plan is queued but only one execution server is available, the **Priority** determines which execution plan is executed first.
Start Time	Time when the execution plan run started.

Column	Description
Time Left	Amount of time remaining until the test is complete. For manual tests that do not have an estimated time, this column has a value of unknown.
Start Type	Shows how the test run was started. • Manually • Through a Web Service • From a schedule • From a dependency
Starter Name	Name of the schedule, tester, or Web Service user.
Start Scope	The scope defined in the **Run** dialog box.
Execution Plan Parent	The configuration suite, folder, or testing cycle in the context of which the execution plan is executed. Click to access the suite or folder in the **Execution Plans** tree. If the execution plan is not included in a configuration suite or folder, nothing is displayed.

Last Executions

The **Last Executions** view lists all past execution plan runs. This list can be filtered and sorted, for example by start time.

To view or edit an execution plan, right-click the execution plan run and choose **Go to Execution Plan**, or click on the arrow to the left of the name of the execution plan. To display the **Results for Execution Plan** page of an execution plan run, right-click the run and select **View Details**, or click the **Run ID** link of the execution plan. This page shows details for the selected execution plan run and includes any files and messages that were generated during the execution. To open the **Results** dialog box of a test, click on the **Run ID** of the test in the **Assigned Tests** portion of the **Results for Execution Plan** page.

To compare execution plan runs, use `Ctrl + Click` to select multiple runs. Right click on your selection and click **Compare Automated Test Results** for automated tests, or **Reports** > **Run Comparison ...** for manual tests.

Right-click on an execution plan and click **Run Execution Plan** to run the execution plan. Silk Central considers all tests that are currently assigned to the execution plan, not the originally assigned tests of the selected execution plan run.

To delete an execution plan run, right-click a run entry and choose **Delete Results** or click **Delete** in the **Actions** column of the run.

Test-result page views are broken into views of 20 test results each. You can advance through pages using **First**, **Last**, **Next**, and **Previous** at the bottom of the **Last Executions** view. Or you can enter a page number into the **Page** text box and press `Enter`.

The **Last Executions** view can be collapsed/expanded by clicking the double-arrow button on the right-hand side of the view's title bar.

For each execution plan, the **Last Executions** view displays the following columns:

Column	Description	
Actions	You can perform the following actions on the execution plan:	
	Delete	Click to delete the execution plan run results. When you delete executions, these executions

Column	Description
	are grayed out until the background process completes the deletion. Alternatively, press `Delete` to delete the execution plan run. For tagged builds, you have to verify that you want to remove the results.
	View Manual Test Results — Click to view the **Current Run** page in read-only mode.
ID	The identifier of the executed execution plan. Unassigned tests have an ID value of N/A. This column is hidden by default.
Execution Plan	Name of the executed execution plan. Click the button beside the name to view the execution plan in the **Execution Planning** unit.
Run ID	ID assigned to the test run. Click the link to view details of the test run.
Status	Displays the number of passed, failed and not executed tests in a bar graph. Filtering, sorting, and grouping are not available for the column.
Keywords	Keywords that were assigned to the execution plan at execution time.
Executed By	• For manual tests, this column displays the users who are assigned to perform the manual test. This column is blank when no manual testers are assigned to the test. • For automated executions, this column displays the name of the execution server.
Start Time	Time when the execution plan run started.
Duration	Time consumed to execute all included tests. Includes the duration of the setup and cleanup test and the time consumed to fetch automation files and code coverage, launch execution tools, and other tasks. For manual executions this is the time between starting and finishing the execution.
Product	The product under test. This column is hidden by default.
Version	The version that either is set by the user for this execution plan, or is read from the build information file at execution time. This column is hidden by default.
Build	The build that either is set by the user for this execution plan, or is read from the build information file at execution time. If the build is tagged, it is marked bold and with 📌.
Start Type	Shows how the test run was started. Manually, through a Web Service, or from a schedule.
Starter Name	Name of the schedule, tester, or Web Service user.
Start Scope	The scope specified in the **Run** dialog box.
Execution Plan Parent	The configuration suite, folder, or testing cycle in the context of which the execution plan is executed. Click to access the suite or

Column	Description
	folder in the **Execution Plans** tree. If the execution plan is not included in a configuration suite or folder, nothing is displayed.

Cross-Project Activities Page

Tracking > **Cross-Project Activities**

The **Cross-Project Activities** page enables a user with SuperUser privileges to see all execution related activities across projects. It provides all the options the **Activities** page offers, and additional options across projects. This allows some conclusion about the execution queue. The SuperUser can remove executions from the queue to resolve bottlenecks.

The **Cross-Project Activities** page is visible to the SuperUser only. The page is split into the same three sections as the **Activities** page: **Next Executions**, **Current Executions**, and **Last Executions**. All three sections include an additional column with the **Project ID**.

Item	Description
Project ID	The ID of the project to which the execution plan belongs to.

Project Overview Report

Silk Central > **Tracking** > **Project Overview Report**

The *Project Overview Report* contains a high-level overview of the status of the selected project.

Quality Goals

Quality goals (exit criteria) are a definable set of testing metrics that the project must meet in order for the quality to be considered acceptable. Each Silk Central project can contain one or more quality goals. Silk Central uses quality goals as a primary means to implement risk based testing, allowing you to plan, to test, and to report on only the most important tests in a given testing cycle.

In Silk Central, a quality goal is comprised of the following two elements:

- A requirement or test.
- One of the following:
  - A custom attribute or property of type **List** with a corresponding percentage value.
  - One of the following default requirement properties: **Priority**, **Reviewed**, or **Risk** with a corresponding percentage value.

Quality Goal Example

If a requirement has a property of `MyCustomRisk` with values of `High`, `Medium`, and `Low`, it should be possible to define a quality goal of:

Requirement Goal - MyCustomRisk	`High = 100%`
	`Medium = 50%`
	`Low = 10%`

The `100%` means that all of the tests that meet that criteria (linked to a requirement that has the *High* attribute value) must execute and pass to meet that goal.

Permissions

Quality goals are permission based. See *Quality Goals Permissions* for details of permission.

Quality Goals Page

Tracking > **Quality Goals**

The following controls are available on the **Quality Goals** tab allowing you to create, edit, or delete quality goals for a project:

Quality Goals Grid

Column	Description
Goal Name	The name of the goal. Select the drop-down list on the column name and then select **Show in Groups** to show all goals in a list.
Name	Each value of the attribute or property `List` type is itemized in the **Name** column.
Goal (%)	This text field must contain a numeric value from `0` to `100`. The value represents the percentage of tests required to meet the defined quality goal.

Buttons

- **Manage Goals** - Click to show the **Manage Quality Goals** dialog box.
- **Planning Report** - Click to show the **Quality Goals Planning Report**.
- **Execution Report** - Click to show the **Quality Goals Execution Report**.

Adding Quality Goals

Before creating a quality goal, you need create a test custom attribute or requirement custom property of type `List` that you want to use for your quality goals. Or you can use the requirement fields of **Priority**, **Reviewed**, or **Risk**.

For example, if you want a quality goal to track a requirement custom property with values of `High`, `Medium`, and `Low`, first go to **Projects:<Project Name>** > **Project Settings** > **Requirement Properties** and create a `List` type custom property that contains these values.

Note: You can only use a property or attribute as a quality goal once per project.

1. In the menu, click **Projects** > **Project List**.
2. Select a project.
3. Click **Tracking** > **Quality Goals**.
4. Click **Manage Goals**. The **Manage Quality Goals** dialog box opens.
5. In the **New Goal Name** field, enter the name for your goal.
6. In the **Attributes/Custom Properties** list, select the item that contains the values that you want to use for your quality goal. The list contains the following types of items:
   - Requirement property of type **List**.
   - Default requirement properties of **Priority**, **Reviewed**, or **Risk**.
   - Test attribute of type **List**.
7. Click **Add New Goal**.
8. Click **Close**. The **Manage Quality Goals** dialog box closes and the new goal is added to the **Quality Goals** grid.

9. For each value in the list, enter a numeric value from `0` to `100` in the **Percentage of Tests Required to Meet Goal**.

Deleting Quality Goals

To delete a quality goal:

1. In the menu, click **Projects** > **Project List**.
2. Select a project.
3. Click **Tracking** > **Quality Goals**.
4. Click **Manage Goals**. The **Manage Quality Goals** dialog box opens.
5. Click the **Delete** icon next to the quality goal that you want to delete.

Issues

Describes how to work with issues in Silk Central.

Creating New Issues

The **Issues** page enables you to easily create issues related to the selected test.

To create a new issue:

1. In the menu, click **Tests** > **Details View** .
2. Select the test for which you want to create a new issue.
3. Click the **Issues** tab.
4. Click **New Issue** to open the **New Issue** dialog box.
5. Select the **Profile** of the issue-tracking system you are submitting the issue to.

   Note: The profile you select here becomes the default selection for when you enter new issues in the future. When adding a new issue to an issue tracking system, you will be prompted to provide login credentials for the issue tracking system. The credentials that you provide will be automatically preselected for you in the future.
6. Enter a brief **Synopsis** of the issue.
7. Enter a meaningful **Description** of the issue.
8. Provide information about the issue by using the UI controls on the right side of the dialog box.

   Note: These UI controls vary, based on the selected **Profile**. For example: If you want to create an issue that shall be processed with Bugzilla, you need to specify the product, the component, and so on. If an issue shall be processed with JIRA, you need to specify other values, like the issue type or the priority.
9. Click **OK** to create the issue.

Viewing Issue Statistics in Document View

To view issue statistics in **Document View**:

1. In the menu, click **Issues** > **Document View**.
2. In the **Issues** tree, select the project, issue-tracking system, or product for which you want to view statistics.

Issues Document View

Issues > **Document View**

The **Document View** displays issue statistics for the selected project in tabular format.

Column	Description
Date	Date and time when issue details were updated.
Open	Number of issues in the selected project, database, or product that have a status of `Open`.
Fixed	Number of issues in the selected project, database, or product that have a status of `Fixed`.
Verified	Number of issues in the selected project, database, or product that have a status of `Verified`.
Closed	Number of issues in the selected project, database, or product that have a status of `Closed`.
Deferred	Number of issues in the selected project, database, or product that have a status of `Deferred`.

Viewing Issue Statistics in Details View

To view issue statistics in **Details View**:

1. In the menu, click **Issues** > **Details View**.
2. In the **Issues** tree, select the project, issue-tracking system, or product for which you want to view statistics.
3. The calendar tool feature enables you to specify the time period over which you want to view issue statistics. Click the time-frame dates link to expand the calendar.
4. Using the calendar's **From** and **To** list boxes, specify start and end times for issue statistics.
5. Click **Update** to update the chart view based on the specified time range.

Issues Page

Issues > **Details View** > **Issues**

The **Issues** page lists the issues from all issue tracking systems that are configured for the selected project. The page includes the following items:

Item	Description
Calendar Tool	Allows you to specify a time-frame for which issues should be reported. Click the time-frame date link to expand the calendar tool.
Update	Updates the **Issues View** based on calendar changes. The button is displayed only when changes exist.

Assigning Existing Issues

The **Issues** page enables you to assign issues from issue tracking systems to a selected test.

To assign an existing issue to a test:

1. In the menu, click **Tests** > **Details View** .
2. Select the node of the test for which you want to assign an issue.
3. Click the **Issues** tab.

4. Click **Assign Existing Issue** to open the **Assign Existing Issue** dialog box.
5. Select the profile of the pre-configured issue-tracking system where the issue is tracked.
6. In the **Issue ID** field, type the unique alpha-numeric ID of an existing issue in the issue-tracking system.
7. Click **OK**.

Note: You can also assign an existing issue to a currently running execution plan in the **Current Run** page, the **Execution Runs** page (in **Execution Planning**), and the **Test Runs** page (in **Tests**).

Updating Issue States

To synchronize issue states between Silk Central and an issue tracking system:

1. In the menu, click **Tests** > **Details View** .
2. Select the node of the test for which you are updating a corresponding issue.
3. Click the **Issues** tab.
4. Click **Update Issue States** to synchronize the state of the issues listed in Silk Central with the corresponding issues in the issue tracking system.

Deleting Issues (Issue References)

To delete an issue reference:

1. In the menu, click **Tests** > **Details View** .
2. Select the test from which you want to delete an issue.
3. Click the **Issues** tab.
4. In the **Actions** column, click ✕.
5. Click **Yes** on the **Delete Issue** dialog box to confirm the deletion.

Important: This action removes just the issue reference in Silk Central. It does not delete the issue itself in the issue tracking system.

Issue Manager

Welcome to Issue Manager!

Issue Manager is a comprehensive tool for automatically tracking issues. With Issue Manager you can enter, process, and manage issues in a way that models the workflow of your organization.

Issue Manager assists you in managing software bugs, documentation issues, requests for enhancements, and more. It is designed to meet the needs of a wide range of users, including application developers, QA engineers, technical support, documentation professionals, managers, and IT personnel.

Issue Manager uses a technique called *action-driven workflow* . This workflow technology moves an issue through its life cycle automatically, based on user actions and issue states that can be customized to the workflow of your business. From the time an issue is reported until it is closed, Issue Manager handles issue routing automatically whenever a user takes an action on that issue.

Your administrator sets up routing rules and workflow to automatically advance issues between inboxes that are assigned to individual users or groups. Users with special security privileges can override predefined issue routing.

Issue Manager allows you to perform the following tasks:

- Report issues through a Web interface.
- Add, review, reassign, fix, verify, and close issues.
- View detailed information about any issue.

- View user accounts and inboxes.
- Receive email whenever certain changes occur to an issue.
- Retrieve issue information from the database by running queries.
- Produce reports and charts.
- Archive issues.

Getting Started with Issue Manager

As an end-user

Become familiar with the end user's tasks.

Create a sample database before you create and configure your organization's production database. For additional information, see *Silk Central Databases*.

As an administrator

Before you can work with Issue Manager, you need to set up a database. For additional information, see *Silk CentralDatabases*.

Exploring the Sample Database

As an administrator, explore the sample database to get familiar with the features of Issue Manager. To explore the sample database:

1. Launch Issue Manager and log into the sample database as `dhart`, a **Development** user with unrestricted permissions.
2. Enter an issue against an existing product.
3. Save the issue. Issue Manager fills in the **Issue Details** page's automatic fields and the **History** tab.
4. Take an action on the issue and complete the corresponding action dialog box. The **Issue Details** page changes. Take other actions until you feel comfortable with the process.
5. View several user accounts.
   a) Note which groups the users are assigned to.
   b) Look at the user's security privileges.
   c) Note the default Inboxes of the users.
6. Add a group.
   a) Assign security privileges.
7. Add an Inbox for a new user.
   a) Associate the Inbox with the new group.
8. Add an account for the new user.
   a) Assign the new Inbox to the user.
   b) Assign any remaining security privileges to this user account.
9. Add a new product, including its routing rules.
   a) Add one or two releases for the product.
   b) Associate each release with one or two platforms.
10. Log out of the system.
11. Log in as the new user.
12. To see how an issue is processed through the workflow, enter and save an issue against your new product.
    a) In the **Assigned To** field the issue has been routed to one of the Inboxes you have specified in your routing rules. The bug is in the **Dev-Ready** state. Select the **History** tab and note the entries there.

b) Select the **History** tab and note the entries there.
c) Reassign the issue to another developer.
d) See how this action is reflected by the **History** tab.
e) Set the issue to **Fixed** to advance it to its next state. The **State** field changes to **QA-Ready** and the **Assigned To** field changes to the Inbox specified in your routing rules. Presumably this is the QA engineer inbox.
f) Set the issue to **Verify**, which means that a QA engineer has verified that the bug has been fixed. The issue should move to the **Closed** state. Look at the **History** tab again. How has it changed?

13. Add two components for the new product.

14. Set up routing rules for the components, specifying different Inboxes than for the entire product.

15. Enter another issue against a specific product component. Repeat the sub-steps described in step 12 to see how the routing changes.

Note: The states the issue passes through remain the same because the workflow is the same for all issues.

16. Change a field label on the **Issue Details** page.

17. Change **Product Code** to **Product**.

18. Open the **Issue Details** page for an existing issue to view the change.

19. Add a new field to **Custom Tab 1**.

20. Open the **Issue Details** page for an existing issue and select the **Custom** tab to see the new field.

21. Generate a few of the predefined reports and charts that are available in the **Reports** unit.

What You Can Do With Issue Manager

As a complete solution for your issue tracking needs, Issue Manager allows you to:

- *Create new issues:*
- *Import issues:* The Silk Test Assistent enables you to forward the details of Silk Test test cases directly to Issue Manager as the basis for new issues. Likewise, when you discover Silk Central execution results that require attention, you can easily use the results as the basis for new issues.
- *Process issues:* Issue Manager lets you review, reassign, fix, verify, and close issues (privilege vary based on user type).
- *Associate files with Issue Manager issues:* If you or a customer has files that are required for reproducing an issue, you can upload those files to Issue Manager and attach them to the issue. In this way, you can easily locate the files you need to confirm, fix, or verify a bug.
- *View a complete history of every issue in the system:* Issue Manager records every action that users take on an issue. The default issue history entry includes the action taken on the issue, the user who took the action, and notes that explain the action.
- *Interact with workgroups:* Your Issue Manager administrator can set up workgroups within your organization for sharing privileges, permissions, inboxes, and assignments. In this way, you can interact with users on an individual basis and also in groups that share similar job responsibilities.
- *Query the system for issue information that meets your criteria*: You can use predefined queries, construct queries by example, or create advanced queries with SQL.
- *Generate reports and graphs:* Create predefined reports based on issue criteria you specify or create advanced reports with SQL.
- *Define notifications:* Define to be notified when issue statuses or assignments change.
- *Remotely interact with the issue database:* Enter and query issues remotely via the web.
- *Assign tests to issues:* With Borland

Using Issue Manager

The Issue Manager Help provides information and guidelines that will help you track issues with Issue Manager to meet the needs of your software development environment.

Overview

This section gives an overview of the Issue Manager UI. This contains the **Issue Tracking** page, the **Issue Details** page, the **Issue Details** tabs, and the **Issue Tracking** toolbar.

Issue Tracking Page

In the menu, click **Issues** > **Issue Tracking**.

The **Issue Tracking** page shows the list of issues of your inbox. To view another **Inbox**, select one from the list in the toolbar. Inboxes can be organized in groups. To show just inboxes of a certain **Group**, select one from the list in the toolbar.

Click the buttons in the toolbar to perform the following actions:

- Click (**My Inbox**) to show the list of issues of your inbox.
- Click (**Refresh Inbox**) to refresh the data in the grid.
- Click (**New Issue**) to add a new issue.
- Click (**Open Silk Test Classic Intelligent Assistant**). For more information, see *Silk Test Intelligent Assistant*.
- Click (**Customize your Inbox View**) to get to the **Configuration** page.

Click (**View Issue**) in the grid to show the details of an issue on the **Issue Details** page. Click on the columns to sort the list of issues.

Issue Details Page

In the menu, click **Issues** > **Issue Tracking**, select an **Inbox** from the list in the toolbar, and then click (**View Issue**) in the grid.

The **Issue Details** page shows detailed information to each issue. Click **Edit** to change the values in the fields and lists. Click the buttons beneath to perform various actions on the selected issue. The buttons vary depending on the state of the issue and on your permissions and privileges. For a list of all available buttons, see *Actions for Working with Issues*.

Click the buttons (**Previous Issue in Inbox**) and (**Next Issue in Inbox**) in the toolbar to step through the list of issues. Click (**Back to Inbox**) or (**My Inbox**) to get back to the list of issues on the **Issue Tracking** page. Enter an issue number in the toolbar field and click **Go** to quickly move to a certain issue.

For more information on the tabs beneath the issue details, see *Issue Details Tabs*.

Issue Details Tabs

The issue details tabs display beneath the issue details on the **Issue Details** page. Before you can edit the values on the tabs (like adding customers or attaching files), you need to click **Edit** on the **Issue Details** page. The following tabs are available:

Name	Description
Description	Contains a **Synopsis** and a **Description** of the issue.
History	Tracks all changes concerning the issue. For example: When the issue was created, who created it, actions like reassigning, fixing, verifying, addition of customers, files, testcases, and so on.

Name	Description
Customers	Allows you to add information about customers who reported the issue. You can edit and remove the customers with the buttons in the **Actions** column.
Attached Files	Allows you to add files with additional information concerning the issue. You can edit and remove the files with the buttons in the **Actions** column.
Testcases	Allows you to add Silk Test testcases. QA and development personnel can directly execute the testcases by clicking (**Run Testcase**) in the **Actions** column. Silk Test testcases can also be imported with the Silk Test Intelligent Assistant.
Notification	Allows you to configure email notifications. Issue Manager notifies you when certain values of an issue change.
Traceability	Shows the tests that are associated with the Issue Manager issue. Enter your Silk Central credentials to activate this tab. Click the name of a test to get to the **Tests Details View**. On the **Issues** tab of the **Tests Details View** you can see all issues that were assigned to the test.
Custom	Contains any custom fields and lists the Issue Manager Administrator set up.

Issue Tracking Toolbar Functions

In the menu, click **Issues** > **Issue Tracking**.

The following commands are included in the **Issue Tracking** toolbar:

Command	Button	Description
My Inbox		Shows your inbox with the list of issues that were assigned to the inbox.
Refresh Inbox		Refreshes the list of issues.
New Issue		Shows the UI for entering a new issue.
Inbox list		Lists the inboxes of the different users.
Group list		Lists the user groups.
Number of issues		Shows the number of issues that are assigned to the selected inbox.
Back to Inbox		Shows your inbox with the list of issues that were assigned to the inbox.
Previous Issue in Inbox		Shows the data of the previous issue in the list of issues in the selected inbox.
Next Issue in Inbox		Shows the data of the next issue in the list of issues in the selected inbox.
Show printable version		Shows a printable view of the data of the selected issue.
Issue number field		Enter the number of the issue you are searching for and click **Go** to show the data of this issue.
Open Silk Test Classic Intelligent Assistant		Opens the Silk Test Classic Intelligent Assistant.
Customize your Inbox View		Shows the **Configuration** page where you can customize your inbox.

Entering Issues

This chapter describes how to create and edit issues in Issue Manager, how to use the Silk Test Intelligent Assistant to create issues out of Silk Test result files and how to export results from Silk Test.

Creating Issues (Issue Manager)

To create a new issue in Issue Manager:

1. In the menu, click **Issues** > **Issue Tracking**.
2. Click (**New Issue**) in the toolbar.
3. Select values for the **Issue Type**, the **Product**, the **Release**, the **Platform**, the **Component**, and the **Severity**.

   Note: The highlighted fields and lists are required.

   As you enter values, Issue Manager dynamically assigns an inbox and an initial state for the issue based on configured rules.
4. Enter a **Synopsis** and a **Description**. To create a link between this issue and another issue, type the issue number or the synopsis of the related issue into the **Linked Issue** field (autosuggest-enabled). Linked issues are listed in the **History** tab.
5. *Optional:* Add further details to the issue. Click the tabs and click the following buttons:
   - **Add Customer**: Track information about customers who have reported the issue.
   - **Add File**: Add a file with additional information about the issue.
   - **Add Testcase**: QA and development personnel can directly execute the added Silk Test testcases by clicking (**Run Testcase**) in the **Actions** column on the **Testcases** tab. Silk Test testcases can also be imported with the Silk Test Intelligent Assistant.
   - **Add Notification**: Configure to be notified by email when certain values of an issue change.
6. Click **OK**.

The **Issue Details** page displays. To get back to the list of issues of your inbox (**Issue Tracking** page), click (**My Inbox**).

Editing Issues (Issue Manager)

To edit an issue in Issue Manager:

1. In the menu, click **Issues** > **Issue Tracking**.
2. Click (**View Issue**) in the grid. The **Issue Details** page displays.
3. Click **Edit**.
4. Edit the values of the lists and fields.
5. Click the tabs to edit further details of the issue.
6. Click **OK**.

The changes are tracked in the history. Click the **History** tab to view the changes.

Silk Test Intelligent Assistant

The Silk Test Intelligent Assistant analyzes testcases in Silk Test result files (.rex). The assistant then creates testcase issues which can be tracked with Issue Manager.

Based on the testcase results you can either create new issues or update existing issues. For example: If you run a testcase and it fails, the Intelligent Assistant can attach the testcase to a new issue. QA engineers can subsequently execute the attached testcase directly from Issue Manager and determine whether the issue has been fixed.

You can assign one or more testcases to an issue. However, you cannot assign a testcase to more than one issue. The Intelligent Assistant considers two testcases to be the same if they have the same script name, testcase name, and arguments.

Note: You can instruct the Intelligent Assistant to consider the same testcase run on different platforms to be separate testcases. The Intelligent Assistant will not propose a testcase to be fixed until that testcase passes on all platforms.

Importing Silk Test Results to Issue Manager

To import the result of Silk Test tests:

1. In the menu, click **Issues** > **Issue Tracking**.
2. Select an **Inbox** from the list in the toolbar.
3. Click (**Open Silk Test Classic Intelligent Assistant**) in the toolbar.
4. Browse for a .rex file on your computer.
5. Select a platform from the list to use the platform that the test ran against as a factor in the consolidation logic.
6. Click the check box to include tests that have no errors and are not already associated with an issue and click **Next**.
7. Click the check boxes to select testcases and click one of the following buttons:
   - Click **New Issue** to create a new issue and assign the testcase to it. For more information see *Creating Issues (Issue Manager)*.
   - Click **Existing Issue** and enter an issue number to assign the testcase to it.

   Assigned testcases are no longer shown in the list.
8. Click **Next**.
9. Confirm the proposed actions and click **Finish**.

The testcases are assigned to the issues. To run or edit the testcases, click the buttons in the **Actions** column on the **Testcases** tab.

Exporting Results from Silk Test

To export results from Silk Test:

1. In Silk Test, click **Results** > **Send to Issue Manager**. The **Send Results to Issue Manager** dialog box displays.
2. Select a results file (.res).
3. Click **OK**. The Intelligent Assistant launches. The **Intelligent Assistant** tab displays with the path to the results file already loaded in the **Exported test results (.rex)** field.
4. Click **Next**. The **Associate Tests with Issues** dialog displays.

Follow the steps in *Importing Silk Test Results to Issue Manager*.

Proposed Changes

When you associate testcase results and Silk Test testcases with issues, the Silk Test Intelligent Assistant compares the results and the current information about issues to build a list of proposed changes for issues.

The list includes proposed actions for issues plus the new issue states and reason codes that will result if you confirm the actions. Each proposed action is based on the current state and reason code of each issue, and on the results of the associated testcases.

To create proposed change list, the Silk Test Intelligent Assistant uses the following equation:

```
[current state and reason code] + [test results] = [special action, new state
and reason code]
```

For example: If the current state of an issue is *QA-Ready* and its reason code is *Fixed*, if a testcase associated with this issue failed, the Intelligent Assistant will propose the *AutoRejectFix* action, which will change the issue's state to *Dev-Ready* and its reason code to *Rejected*. The following equation summarizes this example:

```
[QA-Ready and Fixed] + [failed test] = [AutoRejectFix, Dev-Ready and Rejected]
```

Working with Issues

Issue Manager provides a range of actions that allow you to work on issues. You can, for example, mark issues as *fixed* or *implemented*, you can indicate that you *need more info* or that an issue is *no longer an issue*, and so on.

The buttons for these actions display on the right side of the **Issue Details** page. For a list of all available actions, see *Actions for Working with Issues*. The list of issues varies depending on the state of the issue and on the permissions of a certain user. Many actions can be configured and customized by the Issue Manager Administrator.

Actions for Working with Issues

The **Issue Details** page shows a list of buttons on the right side. Click the buttons to work on a certain issue. The buttons vary depending on the state of the issue and on your permissions and privileges.

You can perform the following actions:

Action	Description
Accept	Indicates that the enhancement or documentation issue described in the issue has been approved for future development.
Add Comment	Allows you to add a comment about the action you are taking on the issue.
Add Workaround	Indicates that the issue will not be fixed right away, but that a workaround will be generated.
Already Done	Indicates that the issue is already fixed.
Arbitrate	Indicates that there is disagreement about the state of the issue. Development, Documentation, or QA need to discuss the issue and its state.
As Designed	Indicates that the issue actually is not an issue because the feature works as it was designed to work.
Cannot Do	Indicates that a requested enhancement cannot be implemented.
Cannot Fix	Indicates that the issue cannot be fixed. That may be the case because it is too risky or because it would be too time-consuming.
Confirm as a Bug	Indicates that the issue actually is an issue that needs to be fixed.
Copy to Project	Allows you to copy issues to another project. All customers, attached files, and testcases are copied with the issue. Notifications are not copied. Click the button, select a **Project** from the list, and click **OK**. The values

Action	Description
	from the source issue are filled in the fields and lists. Edit the values as required and click **OK**.
Defer It	Allows you to defer an issue to a later release.
Edit	Allows you to edit the values in the fields and lists on the **Issue Details** page and on the **Issue Details** tab.
Fixed	Indicates that the issue is fixed. Specify the build or release in which the issue was fixed.
Implemented	Indicates that the enhancement is implemented.
Mark as Duplicate	Marks an issue as a duplicate of another issue. Specify the issue number of the matching issue. That issue will remain open.
Need More Info	Indicates that Development needs more information about the issue from QA. That may be the case when a bug cannot be reproduced or when the description is not clear.
No Longer an Issue	Indicates that the issue is outdated. That may be the case when new functionality or another bug fix resolved the issue.
Not a Bug	Indicates that the issue is not a bug, but rather that the reporter of the issue misunderstood functionality.
Not Reproducible	Indicates that the issue cannot be reproduced.
Reassign	Allows you to assign an issue to a different inbox.
Reject	Indicates either: • The issue is fixed but cannot be varified and therefore is rejected. • The requested enhancement was not approved.
Reopen Bug	Indicates that QA has reopened the issue. That may be the case when an issue was fixed in a previous build and was reintroduced in a later build.
Verify	Indicates that the issue is fixed and accepted as fixed.

Taking Action on Issues

To take action on an existing issue:

1. In the menu, click **Issues** > **Issue Tracking**.
2. Click (**My Inbox**) or select a **Group** and an **Inbox** from the lists in the toolbar.
3. Click (**View Issue**) in the grid. The **Issue Details** page displays. The action buttons display on the right side.
4. Click an action button and enter the required values in the dialog box.

For a list of all available actions, see *Actions for Working with Issues*.

Setting Issue Verification Preferences

With the issue verification preferences you configure how issues are verified each time you create a new issue or work on an existing issue.

To set issue verification preferences:

1. In the menu, click **Issues** > **Configuration**.
2. Click **Preferences**.
3. Select one of the following options:
   - Click **Always use normal routing**: This is the default system routing.
   - Click **Always verify your own issue**: All entered issues are routed back to you for verification.
   - Click **Prompt for each new issue**: Determine for each individual case if the issues are routed back to you or if the issues use standard routing.

Note: You need the **Issue Verification Preferences** security privilege to set the preferences. The Issue Manager Administrator can assign this privilege to you. If you do not have this privilege, the option buttons are disabled.

Email Notification

You can configure Issue Manager to notify you whenever certain pre-defined events occur. These events are:

- **Reassignment**: An issue is reassigned with no change in state.
- **StateChange**: An issue changes its state.
- **AnyChange**: A change is made to an issue that generates a new history entry.

The Issue Manager Administrator can define additional rules for specific events. Once rules are defined, users can setup triggers. You can define systemwide notification triggers or notification triggers for specific issues. For these actions, you need the following security privileges:

Action	Required security privilege
Defining notification rules	Email notification rules and systemwide triggers
Defining notification triggers	Email notification issue triggers
Defining systemwide notification triggers	Email notification rules and systemwide triggers

The system administrator has to configure the email server settings. Otherwise triggers will not work.

Any user can define a basic email notification, regardless of assigned permissions. If you set this basic notification, Issue Manager notifies you when another user makes changes to an issue in your inbox or assigns a new issue to your inbox.

Defining Notification Rules

Issue Manager provides three default notification rules: **AnyChange**, **Reassignment**, and **StateChange**. To define additional notification rules:

1. In the menu, click **Issues** > **Configuration**.
2. Click **Notification Rules** on the left side.
3. Click **Add Rule**. The **New Notification Rule** dialog box appears.
4. Enter a **Rule Name**, a **Description**, and a **WHERE Clause**.
5. Check the **Is Active** checkbox to activate the rule.
6. Click **OK**.

The notification rule is added to the list.

Note: You need the security privilege **Email notification rules and systemwide triggers** to define notification rules.

Defining Notification Triggers

To define notification triggers:

1. In the menu, click **Issues** > **Issue Tracking**.
2. Click (**My Inbox**) or select a **Group** and an **Inbox** from the lists in the toolbar.
3. Click (**View Issue**) in the grid. The **Issue Details** page displays.
4. Click **Edit** on the right and click the **Notification** tab.
5. Click **Add Notification**. The **Add Notification** dialog box displays.
6. Enter the required values and click **OK**. The notification trigger is added to the list.

To edit the trigger click (**Edit Notification**, to delete the trigger click (**Remove Notification**) in the **Actions** column.

Note: You need the security privilege **Email notification issue triggers** to define systemwide triggers.

Defining Systemwide Notification Triggers

To define systemwide triggers:

1. In the menu, click **Issues** > **Configuration**.
2. Click **Systemwide Triggers** on the left.
3. Click **Add Systemwide Notification**. The **Add Notification** dialog box appears.
4. Enter the required values and click **OK**. The systemwide notification trigger is added to the list.
5. *Optional:* Click **Preferences** on the left and check the check box **Show systemwide triggers on each issues's Notifications tab**. All systemwide triggers display on the **Notification** tab of each issue. You cannot edit or remove these triggers on the **Notification** tabs.

To edit the trigger click on the rulename. To delete the trigger click (**Remove Systemwide Notification**) in the **Actions** column.

Note: You need the security privilege **Email notification rules and systemwide triggers** to define systemwide triggers.

Configuring Basic Email Notification

To configure basic email notification:

1. In the menu, click **Issues** > **Configuration**.
2. Click **Preferences** on the left.
3. Check the check box **Notify me when users assign issues to me or make changes to issues in my inbox**.

Note: Any user can define a basic email notification, regardless of assigned permissions. The subject line and content of the basic email notification can be configured in the file *SRFrontendBootConf.xml*.

Reports (Issue Manager)

With the highly customizable Issue Manager reports you can transform data into meaningful charts. Issue Manager provides a number of pre-configured reports, which are divided into three categories. These categories display in the **Reports** tree:

- Popular Reports
- Text Search

- Management Reports

Text searches are queries that return report data in tabular format. Report templates are created with BIRT RCP Designer, an Eclipse-based open-source report tool, or with Microsoft Excel.

If you do not have any data in the selected project or if you are not connected to the correct Issue Manager database, blank reports are generated.

You can create reports using the GUI-based tools or by manually writing SQL code. With this advanced approach there is virtually no limit to how data can be queried and presented in reports.

For more information on how to work with reports, see *Reports*.

Creating Reports

To create an Issue Manager report:

1. In the menu, click **Issues** > **Reports**.
2. Select a folder in the **Reports** tree.
3. Click (**New Child Report**) in the toolbar. The **Create New Report** dialog box appears.
4. Enter a **Name** and **Description**.
5. If you want to **Share this report with other users** check this check box.
6. Enter a **Timeout [s]** to define how long Issue Manager waits for report executions to complete.
7. Select a **Default tab** and a **Result category** from the lists.

   If you access a report by using the context menu (for example when you right-click on a test), you are directed to the defined **Default tab**.
8. Select a **Selection criteria**, a **Property**, an **Operator**, and a **Value** from the lists.

   Allowed wildcards for strings are * (any amount of characters) and ? (exactly one character).
9. Click **More** to create an additional query string and select the **AND** or **OR** operator to connect the query strings. Click (**Remove**) to remove query strings.
10. Click **Next** to configure the columns of the report. You can **Add Columns**, **Remove All**, set the order by clicking (**Move Up**) or (**Move Down**), remove a single column by clicking (**Remove**), set sorting and grouping options, and enter an **Alias**.
11. Click **Finish**.

You can also create reports by manually writing SQL code. Click **Advanced** on the **Create New Report** dialog box and enter or paste your SQL code. For more information, see *Writing Advanced Queries with SQL*. For a list of all available function placeholders, see *SQL Functions for Custom Reports*.

Adding Sub-Reports

To aggregate the results from multiple reports into the currently selected report, you can add sub-reports. The result columns and rows of the sub-report are concatenated to the results of the selected report.

To add a sub-report:

1. In the menu, click **Issues** > **Reports**.
2. Select a report in the **Reports** tree.
3. Click the **Properties** tab.
4. Click **Add Sub-Report**. The **Add Sub-Report** dialog box appears.
5. From the **Reports** tree, select the sub-report you want to append to the current report.
6. Click **OK**. Sub-reports display on the associated report's **Properties** page in the **Sub-Reports** section.

To delete a sub-report, click (**Remove**) in the **Actions** column.

Editing Report Properties

To edit the properties of a report:

1. In the menu, click **Issues** > **Reports**.
2. Select a report from the **Reports** tree.
3. Click (**Edit**) in the toolbar. The **Edit Report** dialog box appears.
4. Edit the values as required.
5. Click **Finish**.

For more information on the UI controls of this dialog box, see *Creating Reports*.

Editing Report Parameters

To edit the parameters of a report:

1. In the menu, click **Issues** > **Reports**.
2. Select a report in the **Reports** tree.
3. Click the **Parameters** tab.
   If any parameters are defined for the report, they are listed here.
4. Click **Edit Parameters**. The **Edit Parameters** dialog box appears.
5. Edit the **Label** or **Value** of the listed parameters as required.
6. From the **Usage** list, select the usage type of the parameter:
   - Constant Value
   - Start Time
   - End Time
7. Click **OK**.

For more information on report parameters, see *Report Parameters Page*.

Issue Manager SOAP API

Issue Manager offers an open API (Application Programmable Interface) to enable access to the Issue Manager repository from a third-party application, for example to submit a defect.

The interface the WSDL is based on is shown below. This interface also contains the documentation for the methods:

```
/**
* A Project object has a ProjectID and a ProjectName. The ProjectID
is used for all further methods
* for specifying the Issue Manager project you want to work on.
* @param sessionID
* @return Array of initialized Issue Manager projects available
for the user used for generating the sessionID
* @throws SQLException
*/

public Project[] getProjects(long sessionID) throws SQLException;

/**
* @param sessionId
* @param projectID
* @return the names of the 3 issue types
*/

public String[] getIssueTypes(long sessionId, int projectID)
throws RemoteException, SQLException, LoginException;
```

```
/**
* @param sessionId
* @param projectID
* @return Array of ProductNames that are configured for the
provided Issue Manager project
*/

public String[] getProducts(long sessionId, int projectID)
throws RemoteException, SQLException, LoginException;

/**
* @param sessionId
* @param projectID
* @param product
* @return Array of ReleaseNames that are configured for the
provided product
*/

public String[] getReleases(long sessionId, int projectID,
String product) throws RemoteException, MissingValueException,
SQLException, LoginException;

/**
* @param sessionId
* @param projectID
* @return Array of available PlatformNames
*/

public String[] getPlatforms(long sessionId, int projectID) throws
RemoteException, SQLException, LoginException;

/**
* @param sessionId
* @param projectID
* @param product
* @return Array of ComponentNames that are configured for the
provided product
*/

public String[] getComponents(long sessionId, int projectID,
String product) throws RemoteException, MissingValueException,
SQLException, LoginException;

/**
* The list of Severities can be grouped by IssueType or Product.
If the list is grouped by IssueType the
* parameter issueType has to be provided and the product parameter
can be empty. If the list is grouped by
* product issueType can be empty and the product has to be selected.
* @param sessionId
* @param projectID
* @param product
* @param issueType
* @return Array of values that can be used for entering an issue in
the given project when the provided
* IssueType/Product is selected.
*/

public String[] getSeverities(long sessionId, int projectID,String
product,String issueType) throws RemoteException,
MissingValueException, SQLException, LoginException,
NotExistingValueException;
```

```
/**
* @param sessionId
* @param projectID has to be a ProjectID delivered by
the method getProjects
* @param issueType has to be a values delivered by
the method getIssueTypes
* @param product has to be a values delivered by
the method getProducts
* @param release has to be a values delivered by
the method getReleases for the selected product
* @param platform has to be a values delivered by
the method getPlatforms
* @param component has to be a values delivered by
the method getComponents for the selected product
* @param severity has to be a values delivered by
the method getSeverities for the selected projectID
and IssueType/Product
* @param synopsis the Synopsis for the new issue
* @param description the Description for the new issue
* @return the Issue Number of the new issue
*/

public int saveNewIssue(long sessionId, int projectID,
String issueType, String product, String release, String
platform, String component, String severity, String
synopsis, String description) throws RemoteException,
MissingValueException, NotExistingValueException,
SQLException, LoginException;
```

Projects (Issue Manager)

Issue Manager uses a project-based workflow. Only those issues that are associated with the active project can be viewed or processed. To access individual issues, you need to select a project. In the menu, click **Issues** > **Project List** and click the name of a project to activate it. The selected project remains active until you select another one.

Initializing Repository Configuration
You need to initialize a project for Issue Manager before you can use it.

Initialized projects display **initialized** in the **Actions** column.

To initialize a project:

1. In the menu, click **Issues** > **Project List**.
2. Click (**Initialize repository configuration for project <project name>**) in the **Actions** column. The **Init Repository** dialog box appears.
3. *Optional:* Click **Create sample data** to have sample data created for the database you are initializing.
4. Click **OK** to start the initialization. The **Start Configuration Wizard** dialog box appears.
5. Click **Yes** to proceed with the Configuration Wizard or click **No** if you plan to configure your project later.

For more information on how to configure Issue Manager, see *Issue Manager Administration*.

Issue Manager Administration

In addition to the management of user accounts and other administration tasks, Issue Manager also shares its database repository with Silk Central. Issue Manager projects are also created, configured, and managed in the Silk Central **Administration** unit. This enables complete integration of Issue Manager projects with Silk Central projects.

When using Issue Manager in conjunction with Silk Central, projects may contain numerous elements in addition to issues, including requirements, tests, and execution definitions.

Issue Manager projects

Issue Manager uses a project-based workflow. Only those issues that are associated with the active project can be viewed or processed. You must select an Issue Manager project (via the **Projects** unit) before you can gain access to individual issues. The selected project remains the default selected project each time you access Issue Manager, until you select an alternate project to work with, at which point the newly selected project becomes the default.

Initializing database configuration

Once a project has been created, its database connection must be initialized before it can be used as an Issue Manager project.

Setting Up Your Data

Once you feel comfortable using Issue Manager, you can enter information about your organization into a database. You can enter this information in the **Configuration** page. To open the **Configuration** page, click **Issues** > **Configuration**.

Your first step should be to gather information about your organization's work processes. Take the time to plan carefully. To effectively use Issue Manager in your organization you have to gather information about the following major areas:

- People.
- Products.
- The suitability of the **Issue Tracking** page, the action dialog boxes, and the workflow of Issue Manager for your organization.

Complete the following activities in the following order:

1. Gather information about the people in your organization.
2. Gather information about products.
3. *Optional:* Assess the interface and the workflow of Issue Manager. You can customize the **Issue Tracking** page, the action dialog boxes, the severities list, and the workflow in the **Configuration** page.
4. Create your own database and populate it with the setup data.

Gathering Information About the People in Your Organization

To gather information about the people in your organization:

1. Draw up a list of groups.
2. Decide which security privileges and initial issue states are appropriate for all members in each group.
3. Draw up a list of accounts.

   Each user who logs into Issue Manager is required to have an account.
4. Decide on a naming scheme for your accounts.

   Include the assigned group, and, if necessary, one or more Inboxes. Ask yourself the following questions:

   - Which accounts need extra security privileges that are not covered by the group's privileges?
   - Should the initial issue states for this account differ from those of the group?
   - Do you want login to require passwords?
5. While reviewing the list of user accounts, note which users need Inboxes.

   Do groups need Inboxes, too? Decide on an inbox naming scheme.

6. You may customize the default view for all users.

   All users have the same default view of Inboxes. The view contains eight columns of information.

Gathering Information About Products

To gather information about the products in your organization:

1. Draw up a list of products, releases for each product, and platforms for each release.
2. Compare your platform list with the list in **Administration** > **Platforms**.
3. Draw up a list of software and documentation components of each product.

   Components (functional areas) are not required; however, they allow you to track issues based on product, release, platform, and component, and to gain finer control over the routing of issues.
4. Draw up a list of issue severities.

   The values on this list are displayed in the **Severity** column on the **Issue Tracking** page. You can categorize this list by product or issue type, or you can come up with a generic list for all products and issue types.
5. Compare your list with the list in **Administration** > **List of Values**.
6. Decide which inbox should receive an issue pertaining to a given product, component, release, and platform.

   These are *routing rules*.

Optional: Assessing the Interface and the Workflows

To assess the interface and the workflows of Issue Manager:

1. Assess the appearance and behavior of the **Issue Tracking** page to determine whether or not you want to perform the following tasks:

   - Modify the default column labels.
   - Add columns to capture additional information.
   - Modify the fields on the **Action** dialog box, or add your own fields.

   Keep a list of your modifications. It's your responsibility to inform the users in your organization about any modifications that you make.
2. Assess the default workflows to determine whether or not they model your organization's needs.

   Look at each state and the valid actions for that state. Are the default group permissions for that action satisfactory?

Routine Administrative Tasks

Occasionally, after initial setup is complete, you will have routine administrative tasks to perform to keep Issue Manager up to date. The following are the most common tasks:

Adding a new user

For a new user, you will need to perform the following tasks:

- Create an Inbox, if needed, before setting up the account.
- Set up a new account, associating the account with an existing group and, if necessary, a default inbox.
- Add the user's Inboxes to the routing rules if the user needs to receive issues through automatic routing.

Removing a user

When a user leaves your organization, you should perform the following tasks:

- Immediately deactivate the user's account so that he or she can no longer log in. You cannot delete an account if a user has created or modified issues.
- Replace any references to the user's Inbox in the routing rules with another Inbox. This step prevents new issues from being sent to this Inbox.

  Note: You should make changes to routing rules only when no other users are logged in to Issue Manager.
- Clear out the user's Inbox by reassigning the issues to other Inboxes.
- Delete the user's Inbox.

Shifting work assignments

You will need to update group assignments when users change jobs. For example, say that Sarah, a QA engineer, moves to development. You will also need to modify the routing rules so that users will receive issues that are appropriate for their new responsibilities. For example, Sarah should now receive issues that require attention by development instead of QA.

When users change projects, you need to modify the routing rules to reflect their current responsibilities. You also need to make sure that the default inbox is still appropriate. For example, say that Judy is a writer who used to write manuals for Product A, but now documents Product B. Judy's default inbox, Judy - Doc (Product A), should be changed to Judy - Doc (Product B).

Adding new product information

Sometimes you will need to perform the following tasks:

- Add new products.
- Add additional releases, platforms, and components for existing products.
- Change your routing rules to accommodate new products, components, releases, and platforms.

Optional Features

Once you have set up your database and have become comfortable in using Issue Manager, consider using the following optional features:

Email notification

The email notification feature allows Issue Manager users to have email sent to them whenever certain events occur to an issue, for example a reassignment or a state change. Users with the *Email Notification Rules and Systemwide Triggers* security privilege can define additional circumstances under which an email is sent. Consult your users about the circumstances under which they would like to receive email.

Archiving issues

The greater the number of issues in the database, the longer actions, for example queries, may take to execute. To help you improve the overall performance, Issue Manager allows you to archive issues that are no longer relevant to your organization's efforts. Archiving issues segregates them in the database so that you can, for example, run queries against only the active issues.

Setting Up Groups

Depending on your organization, groups can be entire departments, cross-departmental project teams, or intra-departmental teams.

Each group can have distinct security privileges and permissions. An Issue Manager group also determines where issues reported by the members of the group enter the workflow. A user's group determines what the user can do in Issue Manager and affects how issues reported by the user are routed.

The sample database provides the following default groups:

- Corporate
- Development
- Documentation
- Quality Assurance
- R&D Management
- Technical Support

All Issue Manager users, regardless of the tasks that they perform, must be assigned to a group. A user can only be in one group at a time.

Groups must be set up before inboxes and user accounts are set up, because each inbox and user must be associated with a group.

Note: Groups are created, edited, and deleted in the **Groups** tab in **Administration** > **User Management**, while group settings specific for Issue Manager are configured in **Issues** > **Configuration** > **Groups**.

Group Properties

Groups have a number of properties. Basic group information, for example the name of a group, is specified in the **Groups** tab in **Administration** > **User Management**. Group settings that are specific for Issue Manager, for example the initial issue states and certain security privileges, are specified in the **Groups** tab in **Issues** > **Configuration**.

Note: You have to create a group before you can modify group settings that are specific for Issue Manager.

Group Information

The following table lists the properties that you can set for a group in **Administration** > **User Management**:

Property	Description
`Name`	Required unique name for a group, for example *Documentation*. Can contain up to 20 characters.
`Description`	*Optional:* Description of the group, for example *Documentation produces all technical publications, including manuals and release notes*. Can contain up to 80 characters.
`Account and Role Assignment`	Users must have certain roles assigned to them.
`Project Assignment`	A group must be assigned to at least one project. Users assigned to a group have access only to the projects that are assigned to the respective group.

Initial Issue State

The *initial issue state* is the first state assigned to a bug, enhancement, or documentation issue when it is submitted by a member of a given group. Different groups can have different initial states for the same type of issue. Moreover, within a group each issue type, bug, enhancement, and documentation issue, can have a different initial state.

For example, you might assign a software bug submitted by members of the Development group to an initial state of `Dev-Ready` because you assume that developers can accurately assess what is actually a software bug. On the other hand, you might assign a software bug submitted by members of the Corporate group to an initial state of `Unreviewed` because you might want to first verify that the issue is truly a new bug before sending it on to Development to be fixed.

Issue Manager provides a number of default states for you to choose from. You can also create your own issue states before you set up the groups in your organization.

Although initial issue states apply to every member of a group, you can explicitly override these settings for a given user.

Group Security Settings

Security privileges define which activities all users in a group can perform. You can assign additional privileges for a given user in a group by editing his or her user account but you cannot take away privileges that have been granted to the user's group.

To assign security privileges for a group, click **Define Group Settings** in **Issues** > **Configuration** > **Groups**. Check the check box to assign the corresponding privilege to the group. To give a group superuser privileges, check all check boxes.

The following table lists the privileges that allow group members to perform specific customization tasks:

Check Box	Description
Groups, inboxes and user accounts	Create and edit groups, inboxes, and user accounts, including security privileges.
Products	Create and edit products, releases, platforms, and components. Edit the **Platforms** list and other lists.
Routing rules	Define how an issue moves from one inbox to another based on the product, release, platform, and component it was logged against.
GUI customization	Customize fields and tabs on the **Issue Tracking** page.
Workflow customization	Define issue states and actions, action permissions, help text, and the appearance and usage of action dialog boxes.
Email notification rules and systemwide triggers	Define email notification rules and add email notification triggers that apply to all issues in the database.
Archive issues	Removes selected issues from the issues and the tables related to the issues and places them in the ARCHIVE and the tables related to the ARCHIVE.

The following table lists the privileges that affect the routing of issues and email triggers:

Check Box	Description
Reassign issues	Move an issue from one inbox to another.
Issue verification preferences	Check to override the normal routing rules.
Email notification issue triggers	Add email notification triggers to individual issues.
Enter/edit issues	Permission to enter and edit issues.

Setting Up Inboxes

An inbox is similar to a mail box. All open, active issues addressed (assigned) to a particular user or group of users are delivered to the Inbox. It is important not to confuse an Inbox with a user account. Issues are always assigned to inboxes, not to specific users.

Note: Archived issues do not display in inboxes.

How are issues routed to inboxes?

The routing rules of Issue Manager automatically dispatch issues to the appropriate inboxes. An issue stays in an inbox until a user acts on it, for example when a developer fixes a bug. Then Issue Manager automatically dispatches the issue to the next inbox, based on your workflow and routing rules. Finally, when an issue is closed, Issue Manager removes the issue from the last inbox.

An issue can also be routed to another inbox when a user with the **Reassign issues** security privilege manually reassigns it to another inbox.

Which users need inboxes?

Users who take action on issues should have an inbox. Developers, QA engineers, and technical writers are in this category. Users who only report or view bugs do not require inboxes. Technical support personnel who routinely report bugs found by customers, but who do not act on bugs may be in this category.

How many inboxes does a user need?

A user can have multiple inboxes. For example, a developer might want two separate inboxes to hold bug reports from two different products. In this case, you might set up the two inboxes *Dan - Dev (Product A)* and *Dan - Dev (Product B)*.

Individual and group inboxes

You can set up inboxes for individual users, groups of users, or subsets of issues. For example, the QA engineers Sarah and Mike might be responsible for verifying bug fixes for different products. In such an instance you would set up the two inboxes *Sarah - QA* and *Mike - QA*.

Users can also share inboxes. For example, a Product Management group might need only one inbox into which all enhancements are funneled; periodically, the entire group might meet to review the suggested improvements. In such situation you might set up a single inbox called *PM - Inbox*.

Another use of an inbox might be as a holding place for a subset of issues. For example, you might want to create an inbox for all deferred issues for Product C. In such a case, creating an inbox called *Deferred (Product C)* might be appropriate.

Assigning a user's default inbox

When you set up a user account you will assign an inbox to the user account. This inbox is the default inbox of the user. A user can have only one default inbox.

Viewing default and other inboxes

You can view your default inbox by selecting **Issues** > **Issue Tracking**. If the default inbox is not displayed, click **My Inbox** in the toolbar.

To see an inbox other than the default, select another inbox listed in the **Inbox** list box. Any user can view any inbox, but only a user with the correct privileges and permissions can act on or reassign an issue.

System default view

Issue Manager provides an initial default view of inboxes for all users. You can customize the default view of inboxes for all users.

Adding an Inbox

You should add at least one inbox for every user who acts on issues.

Note: You need the **Groups, inboxes and user accounts** security privilege to add, edit, or delete inboxes.

To add an Inbox:

1. In the menu, click **Issues** > **Configuration**.
2. Click **Inboxes**. The **Inboxes** page opens.
3. Click **Add Inbox**. The **Inbox Settings** dialog box opens.

4. Type a name for the Inbox in the **Name** field.

   Each inbox requires a unique name of up to 20 characters. The following are sample Inbox names:

   - `Dave (Dev)`
   - `PM Inbox`
   - `Jesse - Doc`
   - `Dan - Dev (Product A)`
   - `Dan - Dev (Product B)`

   User Inbox names can be in any format you choose, but you should follow the format consistently. The following are sample formats:

   - user (group)
   - user - group
   - user - group (Product-name)
   - user

   Group inboxes should also follow a consistent format, for example one of the following:

   - group
   - Group (Product-Name)

   Special characters are not allowed. Inbox names are displayed in ASCII sort order (capital letters first) on the **Inboxes** page.
5. From the **Group** list box, select the group that is associated with this Inbox. Based on this association, Issue Manager helps users reassign issues selectively. For example, say that Denise, who is in the Documentation group, reassigns an issue in her inbox. Issue Manager opens the **Issue Reassignment** dialog box with Documentation as the default group. Denise can then select another member of the Documentation group from the **New Inbox** list box without having to scan the entire list of inboxes.
6. *Optional:* Enter a description of the inbox in the **Description** field.

   The description can have a length of up to 80 characters. For example `Developer David Hanson's inbox` or `dhart's inbox for Product B issues`.
7. The **Is Active** check box is checked by default.

   Note: If the inbox is used in the routing rules you cannot uncheck the **Is active** check box.
8. Click **OK** to create the new inbox..

Editing an Inbox

Note: You need the **Groups, inboxes and user accounts** security privilege to add, edit, or delete inboxes.

To edit an inbox:

1. In the menu, click **Issues** > **Configuration**.
2. Click **Inboxes**. The **Inboxes** page opens.
3. Click on the name of the inbox that you want to edit. The **Inbox Settings** dialog box opens.
4. Edit the name of the inbox.
5. Select a different group from the **Group** list box.
6. Edit the description of the inbox.
7. Check or uncheck the **Is active** check box.

   Note: If the inbox is used in the routing rules you cannot uncheck the **Is active** check box.
8. Click **OK** to save your changes.

Deleting an Inbox

You can delete an inbox only if it does not contain any issues, is not referenced in routing rules, and is not the default inbox of a user. Before you try to delete an inbox, edit the routing rules to prevent new issues from being routed to the inbox, and then reassign the existing issues in the inbox.

Note: You need the **Groups, inboxes and user accounts** security privilege to add, edit, or delete inboxes.

To delete an inbox:

1. In the menu, click **Issues** > **Configuration**.
2. Click **Inboxes**. The **Inboxes** page opens.
3. In the **Actions** column of the inbox that you want to delete, click . A confirmation dialog box opens.
4. Click **Yes** to remove the inbox from the system.

Setting Up the Initial Default Inbox View

When you install Issue Manager, the initial default inbox view consists of the following eight columns:

- Severity
- Issue#
- Product
- Component
- Release
- Synopsis
- Created By
- Changed By

You can perform the following customization tasks to the initial default inbox view for all users:

- Add or remove columns from the display.
- Edit the label of a column.
- Change the sort order of a column.

Individual users can create custom initial views of inboxes.

Modifying the Default Inbox View

Note: You need the **Groups, inboxes and user accounts** security privilege to add, edit, or delete inboxes.

To modify the initial default inbox view:

1. In the menu, click **Issues** > **Configuration**.
2. Click **Inbox Views**. The **Inbox Views** page opens. This page displays all of the fields that you can choose to display in an inbox view. Most of the fields are recognizable from the **Issue Details** page. Others, for example **NumHistory**, **NumCases**, **NumAttaches**, **NumTestcases**, and **NumNotify** refer to the number of entries on the respective **History**, **Customers**, **Attached Files**, **Testcases**, and **Notifications** tabs of the **Issue Details** page. The **Inbox Views** page also displays the schema, or **DB Field Name** , of each column.
3. From the **View of user** list box, select **SYSTEM DEFAULT**.
4. To add a column to the inbox, click the that corresponds to the column in the **List of Available Fields**.
5. To remove a column from the inbox, click the that corresponds to the column in the list of the inbox columns.
6. To change the label of a column and the sort order, perform the following steps:

a) Click on the name of the inbox column in the **Inbox Column Label** column. The **Inbox Column Properties** dialog box opens.
b) Type a new label for the column into the **Inbox column label** field.
c) Click the appropriate option button to change the sort order.
d) Click **OK**.

7. To move a column to the left in the inbox, click .
8. To move a column to the right in the inbox, click .
9. Click **View Inbox** to view the updated default inbox view.

Setting Up User Accounts

A user account is a collection of information about a given user. Each user is assigned to a group and, if the user acts on issues, an inbox. A user account can be password-protected. Every person who logs on to the system to report an issue, act on an issue, or merely browse, needs a user account.

Note: You can create, edit, or delete user accounts in the **Accounts** tab in **Administration** > **User Management** .

Users inherit the security privileges and the initial issue states of their group. To give an individual user enhanced privileges or alternate initial issue states, you must edit the account of this user. To configure these settings, use the **User Accounts** tab in **Issues** > **Configuration**.

Note: Before you can set up user accounts, you must have already set up groups and inboxes.

User Account Properties

The issue-related properties for user accounts are specified in the **User Accounts** tab in **Issues** > **Configuration**.

Note: Before you can view or edit issue-related account properties, you must create a user account.

Click on the name of a user in the **User Accounts** tab to edit the issue-related account properties.

The following table lists the issue-related account properties:

Property	Description
`Login`	Required unique login name for a user. Can contain up to 30 characters. Special characters are not allowed. **Note:** You cannot edit the login name in Issue Manager.
`Inbox`	The default inbox of the user. You can select an alternate default inbox for the user from the **Inbox** list box.
`Setting Group`	Required. The group to which this user belongs. When you select a group from the **Setting Group** list box, Issue Manager automatically assigns the default values of the group for initial issue states and group security settings to the user.

Initial Issue State

The *initial issue state* is the first state assigned to a bug, enhancement, or documentation issue when it is submitted by a user. The default values are the group defaults, which are the values assigned to the group to which the user belongs.

You might want to change the default initial issue states for a user account, if, for example, a user has a higher level of technical competence. For example, suppose that within a group of non-technical

managers, one manager is decidedly technical. You might want to have this user's issues enter Issue Manager further along in the workflow.

User Security Settings

Security privileges define which activities the user can perform. The default security privileges for a user are the security privileges of the group to which the user belongs. You can assign additional privileges for a given user in a group by editing his or her user account but you cannot take away privileges that have been granted to the user's group. The default security privileges are read-only.

To assign security privileges to a user account, click on the name of the user in **Issues** > **Configuration** > **User Accounts**. Check the appropriate check box to assign the corresponding privilege to the user.

The following table lists the privileges that allow users to perform specific customization tasks:

Check Box	Description
Groups, inboxes and user accounts	Create and edit groups, inboxes, and user accounts, including security privileges.
Products	Create and edit products, releases, platforms, and components. Edit the **Platforms** list and other lists.
Routing rules	Define how an issue moves from one inbox to another based on the product, release, platform, and component it was logged against.
GUI customization	Customize fields and tabs on the **Issue Tracking** page.
Workflow customization	Define issue states and actions, action permissions, help text, and the appearance and usage of action dialog boxes.
Email notification rules and systemwide triggers	Define email notification rules and add email notification triggers that apply to all issues in the database.
Archive issues	Removes selected issues from the issues and the tables related to the issues and places them in the ARCHIVE and the tables related to the ARCHIVE.

The following table lists the privileges that affect the routing of issues and email triggers:

Check Box	Description
Reassign issues	Move an issue from one inbox to another.
Issue verification preferences	Check to override the normal routing rules.
Email notification issue triggers	Add email notification triggers to individual issues.
Enter/edit issues	Permission to enter and edit issues.

Editing a User Account

Note: You need the **Groups, inboxes and user accounts** security privilege to edit user accounts.

To edit the security privileges and the initial issue states for a user account:

1. In the menu, click **Issues** > **Configuration**.
2. Click **User Accounts**. The **User Accounts** page opens.
3. Click on the name of the user for whom you want to edit the security privileges. The **User Settings** dialog box opens.
4. Change the security privileges of the user and the initial issue states.
5. Click **OK** to save your changes or click **Cancel** to exit without making changes.

Defining Product Settings

In addition to tracking issues for specific products, Issue Manager also tracks issues for the following:

- Specific versions of products.
- Specific platforms that product versions are associated with.
- Specific product components.

Product teams often have more than one person writing code for a given application. Issue Manager enables you to link products and components with specific inboxes. Additionally, Issue Manager automatically assigns new issues to the appropriate developers based on the product, the component, the release and the platform.

Note: You can create and edit products, components, versions, builds, and platforms in the **Administration** unit of Silk Central. The only properties that you can configure through Issue Manager are product inbox settings.

It is up to you to define how you want to distinguish products from components. A product in one organization might be defined as a component in another organization. The following basic definitions might help you:

Product	A product is a piece of software that can be run separately from other software that may be delivered with it. It can be sold separately if required. In a product the executable program is separated from the code base. A product may consist of multiple components.
Component	A component is a functional area of a product. A component cannot be sold separately, and users do not see a component as a distinct product. A product may have one or more components associated with it.
Release	A release is a specific version or a specific software build of a specific product. A release can be an internal development build or a build that is shipped to customers. A product might have multiple releases associated with it. A specific release of a product might be available on more than one platform.
Platform	A platform is an environment in which a product runs. A platform consists of a combination of any of the following elements: • Hardware. • Operating system. • Operating system release. For example Microsoft Windows 7. Many of the values that are defined for products, releases, platforms, and components are displayed on the **Products** page in **Issues** > **Configuration** > **Products**.

Defining Inbox Settings for a Project

To define the inbox settings for specific products in Issue Manager:

1. In the menu, click **Issues** > **Configuration**.
2. Click **Products**. The **Products** page opens.
3. Click **Define Product Settings**. The **Product Settings** dialog box opens.
4. From the **Product** list box, select the product for which you want to define inbox settings.

   Note: By clicking the name of a product that has already been assigned to an issue in the **Products** page, you can bypass this step.
5. From the **QA-Inbox** list box, select the predefined inbox to which an issue assigned to QA and defined with the given product should be routed.
6. From the **Dev-Inbox** list box, select the predefined inbox to which an issue assigned to development and defined with the given product should be routed.
7. From the **Enh-Inbox** list box, select the predefined inbox to which an enhancement-request issue which is defined with the given product should be routed.

8. From the **Doc-Inbox** list box, select the predefined inbox to which an issue assigned to documentation and defined with the current product should be routed.
9. Click **OK**.

Deleting a Product

Deleting a product in Issue Manager does not actually delete the product from the repository, but rather detaches the product from the selected project, so that the product is no longer accessible from Issue Manager.

Note: You can only delete a product as long as no issues have been entered for the specific product.

To delete a product from the active project:

1. In the menu, click **Issues** > **Configuration**.
2. Click **Products**. The **Products** page opens.
3. In the **Actions** column of the product that you want to delete, click ✕. A confirmation dialog box opens.
4. Click **Yes** to complete the deletion.

Setting Up Routing Rules

Issue Manager relies on defined routing rules, the current state of each issue, and the corresponding state owners to determine the inboxes that issues are to be routed to during their life cycles. This sophisticated routing mechanism replaces what would otherwise be a tedious task for issue dispatchers.

The state of an issue is the current condition of the issue. A number of states are provided in the default workflow of Issue Manager. The state owner is the role in your organization that is responsible for acting on an issue in a given state.

The following are examples of issue states and owners from the default issue workflow:

Unreviewed	Someone needs to determine whether or not this issue is truly a bug or documentation error. Usually, this role is owned by a QA engineer.
Dev-Ready	Code is ready to be addressed. This role is typically owned by a developer.
QA-Ready	Someone needs to verify that the bug has actually been fixed. This role is usually owned by a QA engineer.

Different issues of the same type can enter the workflow in different states, depending on who submits them. The routing is affected accordingly. For example, an issue submitted by a developer enters the workflow in the Dev-Ready state, and is therefore routed to a developer's inbox. An issue submitted by a corporate user enters the workflow in the Unreviewed state, and is therefore routed to a QA engineer's inbox. The so-called initial issue state is assigned through group settings.

An issue moves from one state to the next in the workflow when a user takes action on that issue. For example, when a QA engineer confirms that a reported, unreviewed issue is indeed a bug, the issue moves from the Unreviewed state to the Dev-Ready state. The main goal of using routing logic here is to make sure that once the issue is judged to be a bug by the QA engineer, it moves from his or her inbox to the appropriate developer's inbox-without need for manual intervention.

Routing Rules

Issue routing is based on rules that you define for a product and its associated releases, platforms, and components. This rule-based mechanism gives you fine control over the distribution of issues because issues are routed based in part on a combination of the following criteria:

- Product
- Component

- Release
- Platform
- Issue state
- State owner

You need to assign the following four inboxes for each set of criteria:

- An inbox responsible for verifying issues, which is typically a QA inbox.
- An inbox responsible for fixing issues, which is typically a Development inbox.
- An inbox for handling documentation problems, which is a Documentation inbox.
- An inbox for enhancement requests, which is typically a product management inbox.

> **Example**
>
> All *Product A* bugs related to the *Installer* component and associated with the *Motif* platform can be routed to one set of inboxes, while all *Product A* bugs related to the *Installer* component for the *Windows* platforms can be sent to another set of inboxes.

Default routing

In addition to granular routing rules, Issue Manager requires that you define one routing rule for the product as a whole, which means default routing. In default routing, issues for all components, releases, and platforms of a specific product are routed to a designated set of four inboxes.

Each inbox covers one of the following areas:

- QA
- Development
- Documentation
- Enhancement requests

For example, all requests for enhancements for *Product X* are directed to the one enhancement request inbox you assign, regardless of the individual component, platform, or release.

Issue Manager uses the default routing rule only when other routing rules do not exist or are not applicable. In other words, default routing rules are applied only when specific rules do not match or have not been specified.

Default routing is set up during Issue Manager product setup.

Analyzing the processes in your organization

Analyze the breakdown of work in your organization. Review your list of products, releases, and platforms and consider each component in turn against this list. Ask yourself questions such as the following:

For this component in this release and on this platform, who, which means which inbox, is responsible for each action, for example verifying, fixing, and so on?

Then define as many rules as required for the different combinations of the following four criteria:

- Product
- Release
- Platform
- Component

Specifying Rules

Each rule is entered into the **Routing Rules** page, which is located in **Issues** > **Configuration** > **Routing Rules**.

Note: The **New Routing Rule** dialog box has an if-then layout. If an issue matches specific conditions, which means it pertains to a particular release, platform, component, and issue type, then it is routed to one of the four specified inboxes. Which one of the four inboxes is chosen is determined by the issue's current state and owner.

The wildcard % symbol

The percent sign (%) in the **Release**, **Platform**, and **Component** fields of the **New Routing Rule** dialog box serves as a wildcard character that matches all characters. Using the percent sign by itself in all three fields would be the same as default routing; everything would be routed to the four inboxes specified in the dialog box, regardless of values for release, platform, and component.

Tip: You must specify release, component, and platform names consistently to take advantage of wildcarding.

Once a rule has been saved, it is entered into the **Routing Rules** page. This page is essentially a routing table for a particular product. Alternate product selections can be made using the **Product** list box at the top of the page.

The order of rules is critical

The order of rules for a component is critical. Issue Manager routes issues by evaluating their current state, for example Unreviewed, against each rule in the table in order. As soon as Issue Manager finds a match, it executes the rule. If there is no match, it routes the issue according to the default rules. Default routing rules are applied only after all other rules for a given product have been applied.

Example

Release 4.% in the **Release** field would match all Release 4 releases: 4.0, 4.1, 4.1.1, and so on.

Example: How to read a routing rule

For example, send issues that are related to *Product A* for all releases and all platforms to the *Sonja - Dev* inbox when the issue is ready for development, to the *Mike - QA* inbox when the issue is ready for QA, to the Product A request-for-enhancement inbox *Dan -- Dev (Product A)* when an enhancement is submitted, and to the *Judy -Doc* inbox when a documentation issue relating to the *Show me* component is reported.

Adding Routing Rules

To add a routing rule:

1. In the menu, click **Issues** > **Configuration**.
2. Click **Products**. The **Products** page opens.
3. From the **Product** list box, select the product for which you want to configure a routing rule.
4. Click **New Routing Rule**. The **New Routing Rule** dialog box opens.
5. Click the corresponding option button to define if the issue is a **BUG or ENHANCEMENT (SOFT)** or if the issue is a **DOC-ISSUE (DOC)**.
6. Select a pre-defined release from the **Release** list box. Or type in a pre-defined release into the **Specific Matchcode** field. Select nothing, which means the dotted line, if any release should be considered.
7. Select a pre-defined platform from the **Platform** list box. Or type in a pre-defined platform into the **Specific Matchcode** field. Select nothing, which means the dotted line, if any release should be considered.

8. Select a pre-defined component from the **Component** list box. Or type in a pre-defined component into the **Specific Matchcode** field. Select nothing, which means the dotted line, if any release should be considered.

   Note: You must select a value for at least one of either release, platform, or component. Otherwise, the new routing rule would follow the same rules as the default rule.

9. In the **Then route to these inboxes** area of the dialog box, select a pre-defined inbox for each of the following four inbox categories:

   - **QA Inbox**
   - **Development Inbox**
   - **Enhancement Inbox**
   - **Documentation Inbox**

10. Click **OK**. The rule is saved and added to the routing table.

    Note: If you have made changes to the routing table, Issue Manager saves and reconfigures the routing rules, which may take some time.

Editing Routing Rules

To edit an existing routing rule:

1. In the menu, click **Issues** > **Configuration**.
2. Click **Products**. The **Products** page opens.
3. From the **Product** list box, select the product for which you want to configure a routing rule.
4. In the **Actions** column of the rule that you want to edit, click . The **Edit Routing Rule** dialog box opens.
5. Click the corresponding option button to define if the issue is a **BUG or ENHANCEMENT (SOFT)** or if the issue is a **DOC-ISSUE (DOC)**.
6. Select a pre-defined release from the **Release** list box. Or type in a pre-defined release into the **Specific Matchcode** field. Select nothing, which means the dotted line, if any release should be considered.
7. Select a pre-defined platform from the **Platform** list box. Or type in a pre-defined platform into the **Specific Matchcode** field. Select nothing, which means the dotted line, if any release should be considered.
8. Select a pre-defined component from the **Component** list box. Or type in a pre-defined component into the **Specific Matchcode** field. Select nothing, which means the dotted line, if any release should be considered.

   Note: You must select a value for at least one of either release, platform, or component. Otherwise, the new routing rule would follow the same rules as the default rule.

9. In the **Then route to these inboxes** area of the dialog box, select a pre-defined inbox for each of the following four inbox categories:

   - **QA Inbox**
   - **Development Inbox**
   - **Enhancement Inbox**
   - **Documentation Inbox**

10. Click **OK**. The rule is saved and added to the routing table.

    Note: If you have made changes to the routing table, Issue Manager saves and reconfigures the routing rules, which may take some time.

Deleting Routing Rules

To delete an existing routing rule:

1. In the menu, click **Issues** > **Configuration**.
2. Click **Products**. The **Products** page opens.
3. From the **Product** list box, select the product for which you want to configure a routing rule.
4. In the **Actions** column of the rule that you want to delete, click ✕. A **Delete Routing Rule** confirmation dialog box opens.
5. Click **Yes** to complete the deletion.

Reordering Routing Rules

To reorder routing rules:

1. In the menu, click **Issues** > **Configuration**.
2. Click **Products**. The **Products** page opens.
3. From the **Product** list box, select the product for which you want to configure a routing rule.
4. In the **Actions** column of the rule that you want to reorder, click one of the following:
   - To move the rule up in the list, click .
   - To move the rule down in the list, click .

Automatic Routing Override Preferences

You can allow individual users or entire groups to override the normal routing for verifying issues in your organization. For example, a user might want to verify that the reported issues have been fixed.

To permit such an override, assign the **Issue verification preferences** privilege to the user or group. With this security privilege, users can then choose one of the following three strategies from **Issues** > **Configuration** > **Preferences**:

Strategy	Description
Always use normal routing	Normal routing for verification. The issue will be routed to the appropriate QA inbox.
Always verify your own issue	Have Issue Manager route issues that users submit to their own inboxes for verification, rather than to the typical QA inbox.
Prompt for each new issue	Have Issue Manager give users the option to override normal routing each time an issue is reported.

Reassignment overrides automatic routing

Reassigning an issue is a method of manual routing that overrides the automatic routing mechanism. A user can explicitly take the Reassign action to route an issue to the inbox of another user, typically a user in the same group. For example, developer Bill, who is going on vacation, might reassign a Dev-Ready bug to his developer colleague Dan. The bug remains in the Dev-Ready state, but it has been reassigned.

When an issue that has been reassigned returns to a previous state in the workflow, for example if Dan were to reject a bug fix, Issue Manager remembers the reassignment and later returns the issue to the inbox to which the issue was manually routed, which in this case is Dan's inbox, rather than to the inbox to which it was originally routed, which in this case is Bill's inbox.

> **Example**
>
> To appreciate how efficiently reassignment works, consider an example in which a bug is reassigned twice - once in the Dev-Ready state and once in the QA-Ready state, and the QA engineer rejects a bug fix, sending the bug back to an earlier state in the workflow.

1. A new bug enters the workflow in the *Dev-Ready* state. The routing rules automatically send the bug to the inbox of developer Bill.
2. Bill reassigns the bug to the inbox of developer Dan.
3. Dan claims that the bug has been fixed, which sends the bug to the *QA-Ready* state.
4. The routing rules automatically route the bug to the inbox of QA engineer Mike for verification.
5. Mike reassigns the bug to the inbox of his colleague Sarah.
6. Sarah rejects the fix, which sends the bug back to Dev-Ready.
7. Issue Manager routes the Dev-Ready bug back to the inbox of Dan, because he was the last developer to act on the bug in that state.
8. Dan fixes the bug again, sending the bug back to QA-Ready.
9. Issue Manager routes the QA-Ready bug back to Sarah's inbox, because she was the last QA engineer to act on the bug in that state.

Without enhanced routing, the issue in the Dev-Ready state (step 7) would be routed to Bill's inbox, who would then once again reassign the issue to Dan. Similarly, the issue in the QA-Ready state (step 9) would be routed to Mike's inbox, who would then once again reassign the issue to Sarah.

Customizing the Issue Details Page

Issue Manager allows you to change the appearance and behavior of the **New Issue** page and the **Issue Details** page for an existing issue. For example, you might want to make a field label more relevant for your organization, for example Build rather than Release.

Changes you make to the labels on the **Issue Details** page are propagated to most other pages and dialog boxes that are invoked through the **Customization** of Issue Manager.

Issue Manager allows you to make the following changes to the **Issue Details** page:

- Edit the labels and modify the properties of the fields that specify basic information about an issue. For example, you might want to change the label Synopsis to Summary.
- Edit the labels of the fields in the **Automatic Fields** area.
- Edit the tab labels.
- Define fields on Custom Tab 1 and Custom Tab 2. You can modify or delete these fields or add your own. By default, Custom Tab 1 contains four fields.

The following table describes where to look for information related to customizing a standard issue field label and standard issue field contents:

Name	Edit field label?	Customize field properties?
Issue Type	*Customizing Fields and Tab Labels*	Yes.
Product	*Customizing Fields and Tab Labels*	Yes. See *Editing Products*.
Release	*Customizing Fields and Tab Labels*	Yes. See *Editing Versions*.
Platform	*Customizing Fields and Tab Labels*	Yes. See *Editing Platforms*.
Component	*Customizing Fields and Tab Labels*	Yes. See *Editing Components*.
Severity	*Customizing Fields and Tab Labels*	Yes.
Synopsis	*Customizing Fields and Tab Labels*	No. Users fill in the synopsis.
Issue Number	*Customizing Fields and Tab Labels*	No. The issue number cannot be customized.
Assigned To	*Customizing Fields and Tab Labels*	Yes. See *Routing Rules*.
State	*Customizing Fields and Tab Labels*	Yes. See *Customizing Workflow States*.

Name	Edit field label?	Customize field properties?
Reason Code	*Customizing Fields and Tab Labels*	Yes. See *Reason Code*.
Action Release	*Action Properties*	Yes.

The following table describes where to look for information related to customizing a tab label and fields on tabs:

Name	Edit tab label?	Customize field on tabs?
Description	*Customizing Fields and Tab Labels*	No. Users fill in the **Description** tab.
History	*Customizing Fields and Tab Labels*	No . Issue Manager fills in the **History** tab, but you can customize the **Action** column. See *Current State Information*.
Customers	*Customizing Fields and Tab Labels*	No. Users can take the predefined **Add Customer** action.
Attached Files	*Customizing Fields and Tab Labels*	No. Users can take the predefined **Add File** action.
Testcases	*Customizing Fields and Tab Labels*	No. Users can take the predefined **Add Testcase** action.
Notifications	*Customizing Fields and Tab Labels*	No. Users can take the predefined **Add Notification** action.
Custom Tab	*Creating Custom Tabs*	Yes. See *Editing Custom Fields*.

Customizing Fields and Tab Labels

Note: You need the `GUI customization` privilege to perform the actions described in this topic.

This topic explains how to customize the standard issue fields, tab labels, and automatic fields, with the exception of the **Action Release** field. For information on customizing the **Action Release** field, see *Standard Action Fields Tab*. You cannot delete any of these fields, nor can you add to them. However, you can change their properties. For example, you can edit their labels, choose their mode, and restrict the groups that have permission to fill in or modify them.

To modify the standard issue fields and tab labels:

1. In the menu, click **Issues** > **Configuration**.
2. Click **Standard Issue Fields**. The **Standard Issue Fields** page opens.

   Note: The **Standard Issue Fields** page is laid out like the **Issue Details** page.
3. If you want to rename a tab label, perform the following actions:
   a) Click the link of the tab that you want to edit. The **Edit Label** dialog box opens.
   b) Modify the name of the tab as required.
   c) Click **OK**.
4. If you want to edit the properties of a field, perform the following actions:
   a) Click the link of any field that you want to edit. The **Edit Field Properties** dialog box opens.
   b) Modify the properties of the field as required.
   c) Click **OK**.

GUI Customization Properties

The fields on the **Issue Details** page have properties that determine their appearance and usage. For example, the properties specify the field's label and control type, for example whether the field is a check box or a text field. You can view and edit the properties for a field on the **Edit Field Properties** dialog box.

To access the **Edit Field Properties** dialog box, click on the link of the property that you want to edit in **Issues** > **Configuration** > **Standard Issue Fields**.

You can change the following properties:

Property	Description
Label	The text of the field label, up to 20 characters. Add a colon if you want to separate the label from its associated contents. Special characters are not allowed.
Control Type	Active only when user-defined fields are created. The type of control can be **Checkbox**, **Textfield**, or **Popup List**.
Case mapping	Active only when the control type is Textfield. Determines the case of the characters that a user enters into a text field. Available values are **Upper**, **Lower**, and **None**.
List name	Active only for user-defined popup lists. Select the name of the custom list that defines the values for this popup list.
Mode	Describes the role of the field when a user reports a new issue.

Value	Description
Required	Must have a value.
Optional	Might have a value or might be blank.
Read-only	Cannot be edited.

Group permissions	Active when mode is **Required** or **Optional**. Permissions defines which groups can enter a value in this field. • **All** gives permission to all groups. • **Selected** restricts permission to the groups you choose from the list box. When the field is required or optional and permission is restricted to selected groups, the field is read-only for all remaining groups.
Remember value from last issue entered	Select this check box to have the **Issue Details** page display the last chosen value. For example, assume that this check box is selected for the **Product** field. When a user reporting an issue first picks a value from the **Product** list box, for example `QA Partner`, that value is preserved, so that the next time the user reports an issue, the **Product** field displays `QA Partner` by default.
Mode	Describes the role of the field when a user edits an existing issue.

Value	Description
Required	Must have a value.
Optional	Might have a value or might be blank.
Read-only	Cannot be edited.

Tip: A check box cannot be a required field. If you need a field to be required, consider defining it as a popup list with two opposite values, such as `Yes` and `No`.

Group permissions	Active when mode is **Required** or **Optional**. Permissions defines which groups can enter a value in this field. • **All** gives permission to all groups.

Property	Description
	• **Selected** restricts permission to the groups you choose from the list box. When the field is required or optional and permission is restricted to selected groups, the field is read-only for all remaining groups.

Custom Tabs and Fields

Issue Manager permits you to define up to ten user-defined fields on **Custom Tab 1** and up to ten user-defined fields on **Custom Tab 2**.

Custom Tab 1

Custom Tab 1 on the **Issue Details** page contains three fields by default. You can add fields to this tab, edit the default fields, or delete the fields and start from scratch.

The following table describes the default fields on **Custom Tab 1**:

Field	Specifies	Mode	Control Type/Value
Automated?	Whether the issue is automated in regression tests or manual.	Optional	Check box. Default is unchecked.
Add Rel Note?	Whether an item on this issue needs to be added to the release notes of the product.	Optional	Check box. Default is unchecked.
Update Doc?	Whether the documentation that is related to this issue needs to be updated.	Optional	Check box. Default is unchecked.

Custom Tab 2

Custom Tab 2 is empty.

Custom Fields

Custom fields can appear in the following two places:

- On the custom tabs of the **Issue Details** page.
- On the action dialog boxes, which open when a user takes an action on an issue.

Creating Custom Tabs

Note: You need the `GUI customization` privilege to perform the actions described in this topic.

To define a custom tab, you must first plan the fields that you want to appear on the tab. Determine what information would be useful to collect. Think about the best field type to use for each field-text field, popup list, or check box. What is the field mode-required or optional? Then complete the following steps:

1. In the menu, click **Issues** > **Configuration**.
2. Click **Custom Issue Tabs**. The **Custom Issue Tabs** page opens.
3. Click **Custom Tab 1** or **Custom Tab 2**. The **Edit Label** dialog box opens.
4. Edit the label of the tab as required.
5. Click **OK** to save the new label.

Defining Custom Fields

Note: You need the `GUI customization` privilege to perform the actions described in this topic.

You can edit the field label, mode, group permissions, and reuse of the previous value. To change a field's control type, you must delete it and then re-create it using the new control type.

To configure a custom field:

1. In the menu, click **Issues** > **Configuration**.
2. Click **Custom Field Pool**. The **Custom Field Pool** page opens.
3. Click **Add Custom Field**.
4. Proceed as described in *GUI Customization Properties*.

Editing Custom Fields

Note: You need the `GUI customization` privilege to perform the actions described in this topic.

To edit a custom field:

1. In the menu, click **Issues** > **Configuration**.
2. Click **Custom Field Pool**. The **Custom Field Pool** page opens.
3. Click on the **Field Label** of the field that you want to edit.
4. Proceed as described in *GUI Customization Properties*.

Deleting Custom Fields

Note: You need the `GUI customization` privilege to perform the actions described in this topic.

To delete a custom field:

1. In the menu, click **Issues** > **Configuration**.
2. Click **Custom Field Pool**. The **Custom Field Pool** page opens.
3. In the **Actions** column of the field that you want to delete, click ✕. A confirmation dialog box opens.
4. Click **Yes** to complete the deletion.

Customizing Workflow

The topics in this section explain the key concepts relating to workflows in Issue Manager. It also presents the three default workflows and describes how they can be edited.

Action-Driven Workflow

Issue Manager manages an issue through its entire life cycle through an action-driven workflow. Action-driven workflow means that an issue is driven from one state (condition) to another by user actions until the issue reaches a terminal, or ending state.

Note: A workflow must have at least one terminal state, which is the last state in the workflow.

Example

In the default workflow, a new bug reported by customer support is considered to be in an *Unreviewed* state, a condition that means that no one has confirmed that the "issue" is truly a bug. Assessing the situation, a QA engineer confirms that the issue is a bug and is ready to send it on to a developer to be fixed. In this example, think of the initial state as *Unreviewed*, the action to be taken as *Confirm,* and the next state as *Dev-Ready*.

If, on the other hand, an identical issue has already been entered, then the action to be taken upon this unreviewed issue is *Mark as Duplicate* and the next state will probably be *Closed*. Therefore a different action upon this unreviewed issue sends the issue to a different state, in this case, *Closed*.

Occasionally, issues retain their current state even after an action has been taken on them. This is true, for example, for *Add Comment,* which allows a user to add a comment to the description of an existing issue.

System-supplied actions

Issue Manager has two predefined actions for each state in each workflow:

Reassign	Allows users to route an issue to another inbox.
Edit	Allows users to modify fields on the **Issue Details** page.

These actions do not change an issue's current state, because they do not move the issue through the workflow.

Action Information

A workflow defines a valid set of actions that can be performed on a state. These actions can be viewed on the **Workflows** page. The available actions vary based on the *Issue Type* and *Current State* selected from the lists.

Actions are available on the **Issue Details** page in the form of buttons. The available buttons (actions) vary based on an issue's type and current state.

State Information

State information appears throughout Issue Manager. For example, each group and user account is assigned three initial issue states, one for each issue type: *bug*, *enhancement*, and *documentation* issue.

Initial issue state affects issue life cycle

The initial state of an issue depends on how knowledgeable the user reporting the issue is with respect to this type of the issue. For example, when a member of the Technical Support group reports a documentation issue, it is assumed to be correctly assessed and ready for fixing, and is assigned an initial state of *Open-Doc.* However, when the same person submits a software bug, it is not necessarily assumed to be accurate, so its first state in the workflow is *Unreviewed.* Different groups can have different initial states for the same type of issue. For more information on initial issue states, see "Initial Issue State".

When a user saves an issue, Issue Manager automatically assigns the issue an initial state based on the initial issue state assigned to the user. When a technical writer logs a documentation issue the value of the *State* field on the Issue Details page is *Open-Doc.* The *State* field is an *automatic field,* meaning that Issue Manager, not the user, fills it in based on the workflow and other information.

State Owner

Each non-terminal state in a workflow has exactly one owner. The owner is the role in an organization that is responsible for acting on an issue in a given state. Consider an unreviewed bug: the user who confirms or denies an unreviewed software issue is most likely to be someone who performs the QA role. Therefore, the state owner of an unreviewed bug is the QA role.

A terminal state in a workflow does not have an owner because an issue in this state does not need someone to be responsible for taking an action on it.

In Issue Manager you choose one of four possible owners for a non-terminal state:

- QA
- Development
- Documentation

- Enhancements

Note: A state owner is not a specific QA engineer or a specific inbox; nor is it related to a specific product, component, release, or platform. A state owner is a general designation of functional responsibility with respect to a state.

The owner is an important property of a state because the state owner and the routing rules together determine the specific inbox that will receive the issue (routing rules are described in *Setting Up Routing Rules*). Here is an example of how Issue Manager uses routing rules, states, and state owners to move an issue to a specific inbox.

Say that you decide that the owner of the *Unreviewed* state of all software bugs, regardless of specific product, component, and so on, should be the QA role. Individuals who fulfill this role will confirm that a reported issue is actually a bug. So, on the *State Properties* dialog for the *Unreviewed* state, you select the *QA Owns This State* radio button. To access this *State Properties* dialog, go to **Issues** > **Configuration** > **Workflows**, and then click **Edit State**.

Now consider routing rules for specific products. When you set up routing rules *(**Issues** > **Configuration** > **Routing Rules**),* you specify four specific inboxes for each combination of product, component, release, and platform. Each of the four state owner radio buttons corresponds to one of the four inboxes on the **Routing Rules** page: *QA, Development, Enhancement,* and *Documentation.*

Example

A routing rule states that when a bug pertains to the *Email* component in any release of *Product C* on any platform, then route the bug to one of these inboxes: *Mike - QA, Sonja - Dev, Dan - Dev (Product C),* or *Judy - Doc.*

One of the four inboxes is selected based on two factors: the current state of the issue and the owner of that state. Assuming that the current state of the bug is *Unreviewed* and that you specified that the QA role owns unreviewed issues, then the issue will be automatically routed to Mike's inbox, *Mike - QA.*

When Mike acts on the issue, he will, in effect, move it along its life cycle to another state, which has another owner. Issue Manager will again determine the appropriate inbox based on the issue's current state, the owner of the state, and the applicable routing rule for the specific product, component, release, and platform.

Reason Codes

Issue Manager reason codes are optional, customizable keywords that describe why an issue has changed its state when a given action is taken.

A number of actions can cause an issue to move to the same state. For example, an issue can be closed for a variety of reasons: it's not reproducible, it's a duplicate, it's not a bug. Without the extra information supplied by the reason code, users will have an incomplete picture of an issue's life cycle.

Reason codes can also help you minimize the number of states in your workflow. For example, instead of defining several terminal states- *Not a Bug, Not Reproducible, Duplicate*, it is sufficient to have one terminal state called *Closed* with a variety of reason codes that indicate why an action closed an issue with, for example, *Closed/Not a Bug.*

The user sees reason codes on the **Issue Details** page and the action dialogs. For example, Judy, a technical writer, receives a documentation issue in her inbox. Reading the description, she recalls that the issue has already been reported. She marks the issue as a duplicate. When the **Mark as Duplicate** dialog box opens, she can see that the issue has moved from *Open-Doc* to *Closed/Duplicate. Closed* is the new state and *Duplicate* is the reason code.

Assigning, clearing, or retaining a reason code

When certain actions are taken, Issue Manager assigns a reason code to the action and passes it on to the new state. Subsequent actions might clear the reason code or simply retain the reason code. In general, once you set a reason code, it travels with the issue until it reaches the terminal state in the workflow.

Consider the case of a developer who fixes a bug and then takes the *Fixed* action to claim that the bug has been fixed. This action moves the bug from *Dev-Ready* to *QA-Ready,* and sets the reason code to *Fixed.* The QA engineer who is verifying the developer's claim accepts the bug fix by taking the *Verified* action. This action retains the *Fixed* reason code and moves the bug along to the *Closed* state.

However, you might want to clear the reason code, for example, when an issue returns to an earlier state in the workflow, instead of progressing toward a terminal state. Say that a QA engineer disputes a developer's claim and takes the *Reject* action, which sends the issue back to the *Dev-Ready* state. The *Fixed* reason code no longer makes sense, so you might want to clear the reason code for the *Reject* action.

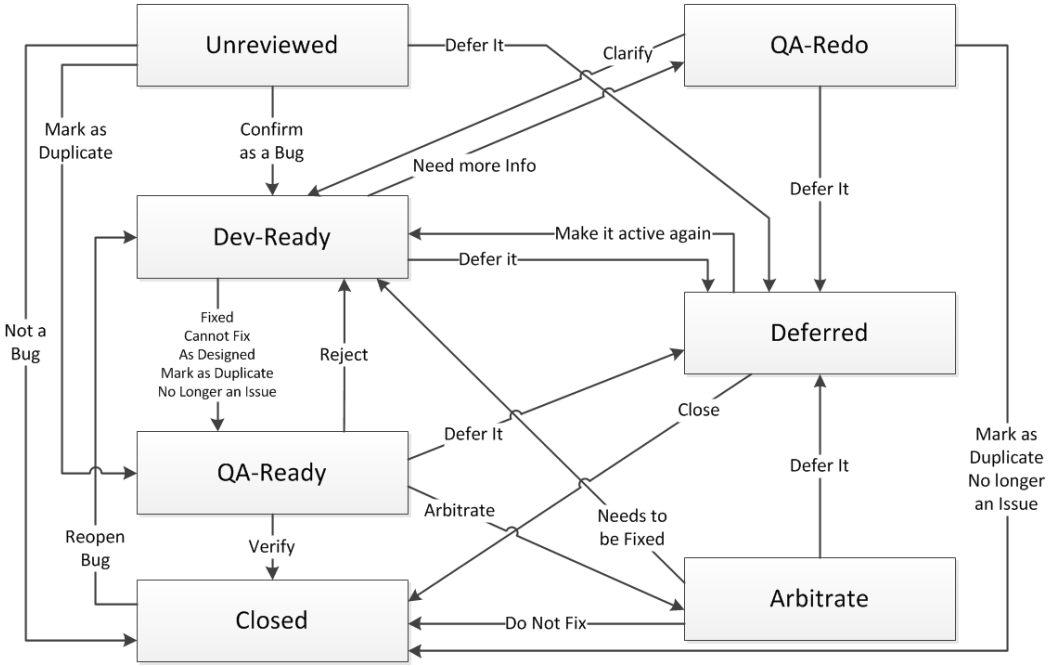
Whether reason codes are assigned, cleared, or retained is determined by the setting in the **New Action for State** dialog, which is described in Reason code. Click **Issues** > **Configuration** > **Workflows** and click **Add Action** to view the **New Action for State** dialog box

Default Workflows

Issue Manager provides three default workflows—for bugs, documentation issues, and enhancements. If you want to modify the default workflows or create your own workflows, see *Developing Your Own Workflows*.

Default Bug Workflow

The following diagram contains the default Bug Workflow:



The Edit, Reassign, Add Comment, and Add Workaround actions have been omitted from this diagram.

- Edit and Reassign are predefined for each state and cannot be modified. These actions do not change an issue's state.
- Add Comment, which is defined for all states, does not change an issue's state.
- Add Workaround, which is defined for Dev-Ready, QA-Ready, QA-Redo, and Closed, does not change an issue's state.

Default reason codes in the bug workflow

To see all the reason codes supplied in the default bug workflow, click **Issues** > **Configuration** > **Workflows**. Select BUG as the issue type and view its valid actions and reason codes.

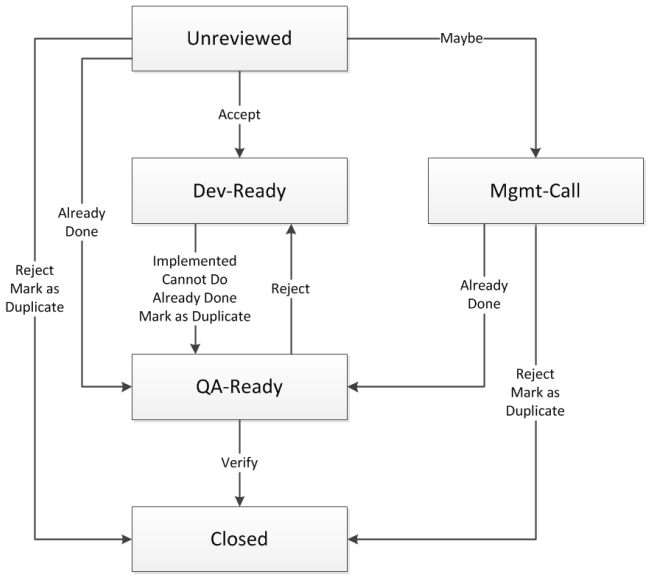
Examples

Consider a common path through the default bug workflow. A bug is reported, enters the *Unreviewed* state, and is sent to a QA engineer's inbox. The bug is confirmed and sent to a developer's inbox (*Dev-Ready* state). The developer claims to fix the bug and takes the *Fixed* action. The *Fixed* action sends the bug to *QA-Ready* with the reason code *Fixed*. The QA engineer who receives the issue verifies that the bug has been fixed. In other words, he takes the *Verify* action, which sends the bug to the *Closed* state, retaining the *Fixed* reason code.

Now consider a small change in the preceding example. Say that the QA engineer rejects the developer's claim that the bug has been fixed. The bug returns to the developer's inbox, but this time the reason code is *Rejected*. The developer is unable to reproduce the problem and so takes the *Need More Info* action. The bug goes to *QA-Redo*. The QA engineer can take one of two actions to close the issue at this point—*Mark as Duplicate* or *No Longer an Issue*, or the QA engineer can clarify the problem and send the bug back to *Dev-Ready*.

Default Enhancement Workflow

The following describes the enhancement workflow.



The *Edit*, *Reassign*, *Add Comment*, and *Add Workaround* actions have been omitted from this diagram.

- *Edit* and *Reassign* are predefined for each state and cannot be modified. These actions do not change an issue's state.
- *Add Comment*, which is defined for all states in this workflow, does not change an issue's state.
- *Add Workaround*, defined for all states except *Unreviewed*, does not affect the state.

Default reason codes for the enhancement workflow

To see all the reason codes supplied in the default enhancement workflow, click **Issues** > **Configuration** > **Workflows**. Select `ENHANCEMENT` as the issue type and view its valid actions and reason codes.

Example

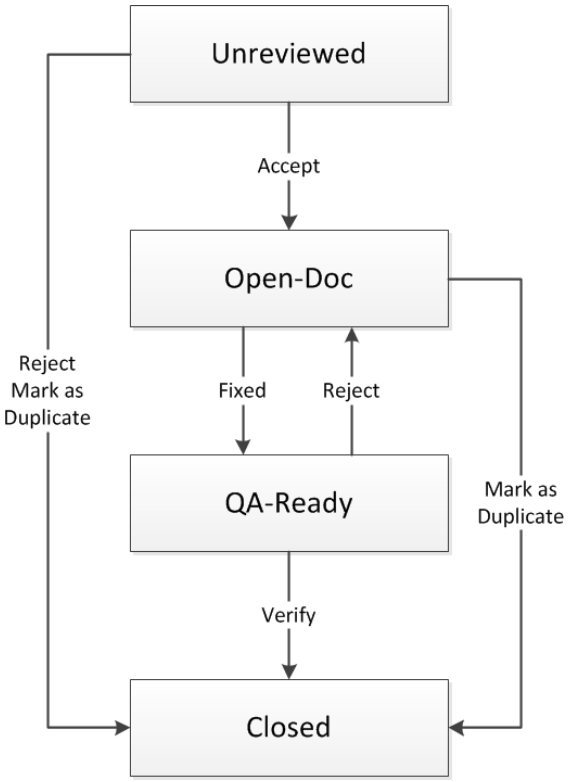
Consider that a request for an enhancement is accepted and sent to Development (*Dev-Ready*) by either an initial set of reviewers (*Unreviewed* state) or by a management team (*Mgmt-Call* state). The management team receives the enhancement request if the initial reviewers take the *Maybe* action.

If the initial reviewers or management team reject the enhancement request, the issue is closed with a reason state of *Rejected*. This *Reject* action is different from a *Reject* action taken on an issue in the *QA-*

Ready state. In that case, the development action (*Implemented*, *Cannot Do*, *Already Done*, or *Mark as Duplicate*) is being disputed.

Default Documentation Workflow

The following diagram contains the default Documentation Workflow:



The *Edit*, *Reassign*, and *Add Comment* actions have been omitted from this diagram.

- *Edit* and *Reassign* are predefined for each state and cannot be modified. These actions do not change an issue's state.
- *Add Comment*, which is defined for all states in this workflow except *QA-Ready*, does not change an issue's state.

Default reason codes in the documentation workflow

To see all the reason codes supplied in the default documentation workflow, click **Issues** > **Configuration** > **Workflows**. Select `DOC-ISSUE` as the issue type and view its valid actions and reason codes.

Example

Assume that a documentation issue enters in the *Unreviewed* state. At that point there are three possible actions that the reviewer can take. He can accept the issue, reject the issue, or mark it as a duplicate of another issue. If the issue is rejected or found to be a duplicate, then it will be closed, with a reason code of *Rejected* or *Duplicate*. If the reviewer considers the issue a documentation issue that needs to be fixed, then the issue will be moved to the *Open-Doc* state and to a documentation inbox. The documentation specialist can take one of two actions at this point: either take the *Fixed* action or the *Mark as Duplicate* action.

- The *Fixed* action sends the issue to the *QA-Ready* state with a reason code of *Fixed*.
- The *Mark as Duplicate* action sends the issue to a *Closed* state with a reason code of *Duplicate*.

If the fix is later verified, then the issue will be moved to the *Closed* state with a reason code of *Resolved*. If, on the other hand, the fix is rejected, then the issue will be returned to a documentation inbox with a reason code of *Rejected*.

Developing Your Own Workflows

If you want to develop your own workflow, the easiest and most reliable approach is to make simple modifications to the default workflows (for example, edit a state name). It is strongly recommended that you modify the default workflows rather than create a new workflow from scratch, especially if you have little or no experience with these concepts.

Some of the things that you can customize include:

- The number and name of the states that an issue passes through.
- Which actions are valid on a particular state. These actions appear on the Workflows window.
- Which states result from each action on the current state; that is:

```
Current State ---- Action 1 ---> New State 1
Current State ---- Action 2 ---> New State 2
```

- Which groups have permission to perform each action.
- The appearance of the action dialogs that are displayed when users take action on issues.

Prerequisite

Familiarize yourself with the concepts of state diagrams and actions, also called state transitions.

Drawing a State Diagram

Draw a state diagram on a whiteboard or paper. Make sure to draw each state in a box with plenty of space between each state.

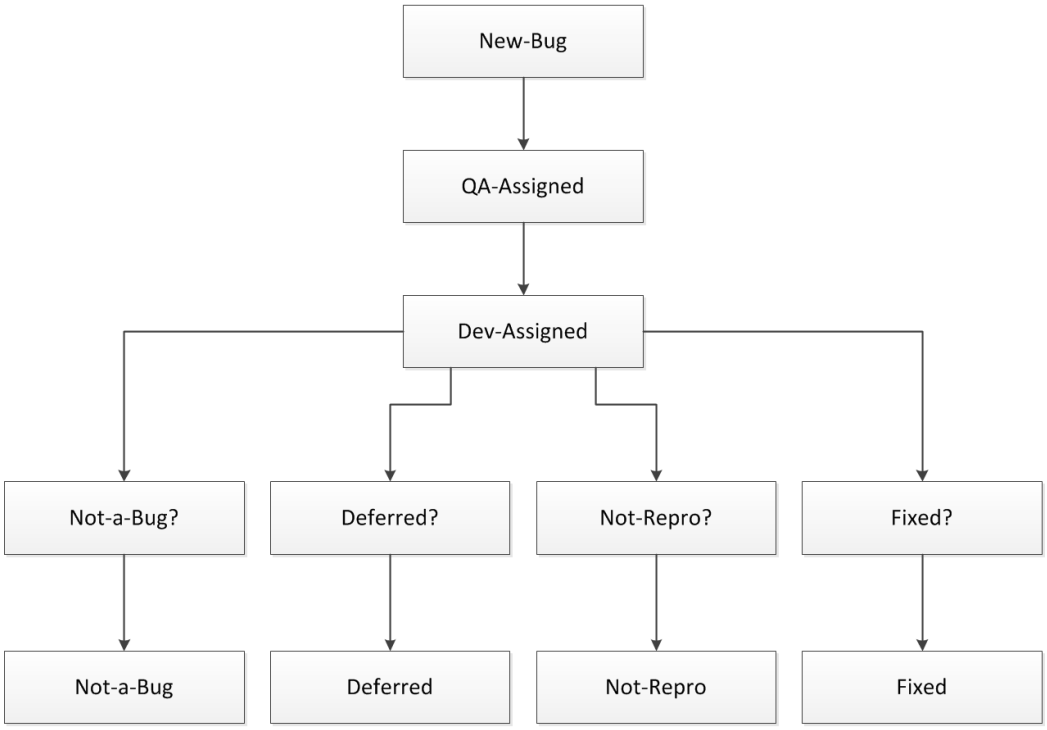
Draw each legal action between states as a line with a single arrow head. Each direction is a distinct action.

Example

The following example is a small sample of the states you might have in your own workflow. When a new bug is entered, someone in your organization dispatches the bug to the appropriate QA engineer for review. If the QA engineer agrees that the reported behavior is a new bug, then it is sent to Development to be fixed. Development can take a number of possible actions on the bug.

- The behavior described in the bug report is designed behavior, so the issue is not a bug.
- The bug should be deferred until the next release.
- The bug cannot be reproduced.
- The bug is fixed.

Of course, these are only the developer's claims and have yet been verified. Your workflow model might reflect these claims with the following states: *Fixed?*, *Deferred?*, *Not Repro?*, and *Not-a-Bug?* The question marks imply that these claims have not yet been verified by a QA engineer.

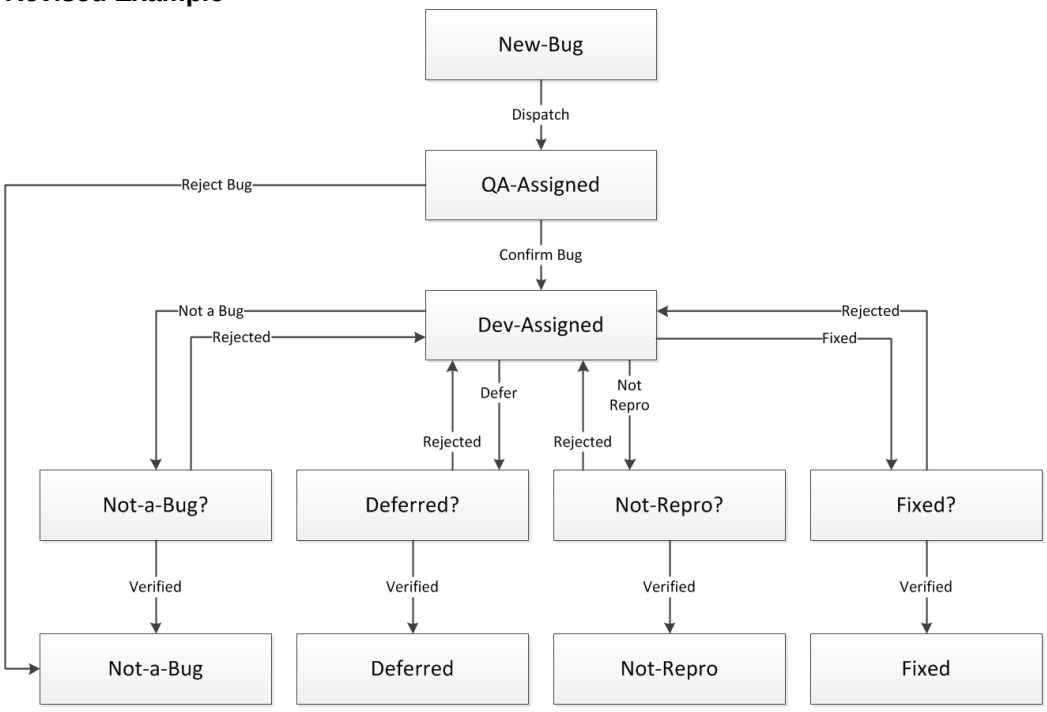


Name Actions with Verbs

It is recommended that you assign a verb to each action. Think about times when a bug might return to an earlier state in the workflow. Model these negative actions. For example, a QA engineer might reject a developer's claim, which returns an issue to Development.

You may also uncover missing positive actions while considering each way that an issue can travel. For example, you realize that QA engineers also reject some issue reports, in effect closing the issues. In the example diagram below, the Reject Bug action by a QA engineer leads to the Not-a-Bug state. Ensure that all actions eventually lead to a terminal state.

Revised Example



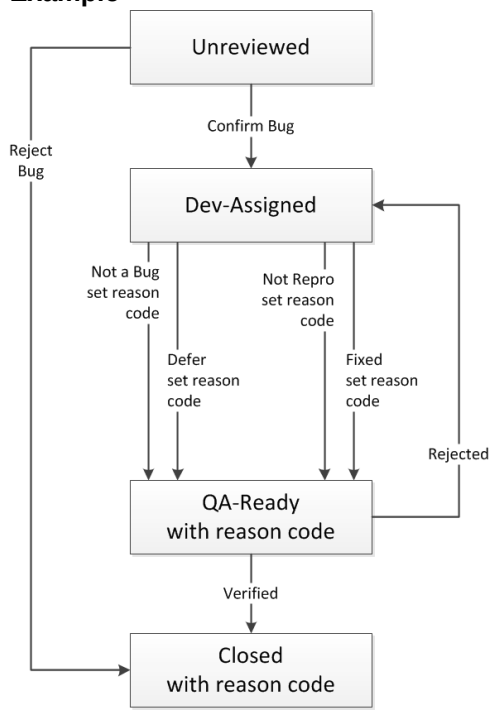
Optimizing the Workflow

As you can see, the preceding diagram is too complicated to be useful. To simplify the workflow you can eliminate the Dispatch action because the routing rules in Issue Manager take care of distributing bugs to the correct inboxes. In the preceding diagram you can delete the New-Bug state and the Dispatch action and start the bug in a state where a QA engineer can review it. You might call this the Unreviewed state.

Another flaw in the workflow is the virtually repetitive states. Using Issue Manager's methodology, you can eliminate redundant states by assigning reason codes to actions. For each action that requires a reason code, devise a brief, descriptive keyword. For a full explanation of reason codes, please read "Reason codes". To identify redundancies, look for repeated patterns in the workflow. For example, in the previous diagram, the last row of states (Not-a-Bug, Deferred, Not-Repro, and Fixed) can be collapsed into the single state of Closed with a different reason code for each action (for example, Closed/Not-a-Bug, Closed/Fixed).

The next-to-last row can also be collapsed into a single state that recognizes QA's role in verifying Development's claims. You might call this state QAReady. You can use reason codes here to explain why a bug has changed states (for example, a bug arrives in the QA-Ready state with a reason code of Fixed or Deferred). The four Rejected actions taken by QA can be collapsed into a single Rejected action. Similarly, the four Verified actions taken by QA can be collapsed into a single Verified action.

Example



Add State Owners and Permissions

Issues are routed according to issue state and state owner. A state owner is a role in your organization that is responsible for an issue in a given state. For example, in the default workflow, QA has responsibility for issues in the Unreviewed state.

Now you must assign an owner to each state in your final diagram. Finally, decide which groups should have permission to take each action. In the default workflow, for example, only users in Development are allowed to fix issues (that means, take the Fixed action).

Prepare a Data Entry Sheet

Optionally, prepare a sheet to facilitate data entry into Issue Manager. The workflow information is entered by state, so the first column should be current state and owner. Then add the following column headings:

- Actions allowed on the current state.
- New state resulting from each action.
- Reason code (if applicable).
- Permissions - The group(s) that are allowed to take each action.

Your data entry sheet should resemble the following:

State/Owner	Actions	New State	Permissions

Workflow State Customization

You can modify the names, owners, and descriptions of the states in the default workflows. You can enter or modify all states at once and then add all actions for each state. Or you can enter one state and all its actions before going on to the next state and its actions.

State Properties

States have the following properties:

State Name Required, unique state name, up to 20 characters long. Special characters are not allowed.

Description Optional description of the state; no practical length limit.

State Owner Choose a state owner by selecting the appropriate option:

- QA Owns This State
- Development Owns This State
- Documentation Owns This State
- Enhancement State
- No One (Terminal State)

Customizing Workflow States

You must have the `Workflow customization` security privilege to perform these tasks.

1. Click **Issues** > **Configuration** > **Workflows**. The **Workflows** page is displayed.
2. Select the **Issue Type** that represents the workflow you want to customize.
3. Proceed with tasks as outlined below:

Add a state to this workflow	Click the **Add State** button. Proceed to step 4.
Edit a state in this workflow	Select the state you want to edit from the **State** list. Click the **Edit State** button. Proceed to step 4.
Add actions for a state in this workflow	See *Customizing Actions, Reason Codes, and Action Dialogs*. Begin the procedure at step 3.
Delete a state in this workflow	Select the state you want to delete from the **State** list. Click the **Delete** button. Select **Yes** on the confirmation dialog. Issue Manager will only delete states that have never been referenced by an issue.
Modify another workflow	Return to step 2.

4. Specify or modify the properties of the state, using the information described in *State properties* to guide you.

Customizing Actions, Reason Codes, and the Action Dialogs

Read this section only if you intend to modify the actions in the default workflows, which are described in *Understanding the Default Workflows*. Before proceeding, please read *Action Properties*.

1. Click **Issues** > **Configuration** > **Workflows**.
2. Select the workflow you want to customize from the **Issue Type** list.
3. Select the state that has the actions you want to modify from the **State** list.
4. The **Workflows** page now illustrates the information you will enter in this procedure:
   - All the actions that apply to this state (as they appear in the **ButtonLabel** column).
   - The state that follows the current state when a given action is taken.
   - The reason code for each valid action (if applicable).

   Note: The Edit and Reassign actions, which Issue Manager predefines for all states, cannot be modified and are therefore not shown in the dialog.
5. Proceed with tasks as outlined below:

Add an action for the current state	Click **Add Action** and proceed to step 6.
Edit an action for the current state	Select the action you want to edit from the **Button Label** column.
Add a new state to this workflow	Return to step 3 of *How to Customize workflow states.*
Change the sort order of an action in this workflow	Click the **Move Up** and **Move Down** buttons (in the **Actions** column) of the action you want to move up or down within the list.
Delete an action from another workflow	Click the **Delete** button (in the **Actions** column) of the action you want to delete. Then click **Yes** on the confirmation dialog. **Note:** Issue Manager will delete only those actions that have never been referenced by an issue.
Modify the actions in another workflow	Return to step 2.
Modify the states in another workflow	Return to step 2 of *How to Customize workflow states.*

6. Specify or modify the properties of an existing action on the **New Action for State** dialog box. Use the information in *Action Properties* as a guide.

Action Properties

After you define the states in a workflow, you must define the actions that are associated with each state. For example, for the *Dev-Ready* state in the default bug workflow, a developer can take the *Fixed* action, the *Cannot Fix* action, and so on.

Each action has a set of properties associated with it.

General properties

The properties of an action are varied and cover the following areas:

- **Button label** that appears on the **Issue Details** page.
- Description of the action that appears on the **History** tab.
- New state that results from this action.
- Reason code.

- Appearance and usage of the action dialog.
- Groups permitted to take this action.
- Sort order of this action.

Action of State dialog box

Action properties are set on the **Edit Action of State** dialog box. (**Issues** > **Configuration** > **Workflows**).

Current State Information

Name	Cannot be edited. Displays the name of the current state for which you are defining or modifying an action (for example, *Edit Action for State - Unreviewed*).
Button label	This is the name that appears on the button that executes this action, located on the **Issue Details** page, up to 30 characters long.
History Action Code	Concise statement of the action that was taken, up to 20 characters long. It is recommended that you use uppercase characters (for example, `VERIFIED`). This code appears in the **Actions** column on the **Issue Details** page's **History** tab.
Tooltip	Optional text that will appear as a tool tip when a user passes their cursor over this action button.
Description	Optional description of this action.

New State List

Name	Name of the next state in the workflow when this action is taken on an issue. For example, in the default workflow when an *Unreviewed* issue is confirmed as a bug, Issue Manager moves the issue to the next state, *Dev-Ready*.
Reason Code	Optional keyword that describes why an issue has changed from the current state to the new state when this action is taken. Select the appropriate option:

No Change	No Change indicates that the keyword is retained when the issue moves to the new state. It will appear in the Reason Code field of the Issue Details page. For example, the following workflow shows that when a developer claims to have fixed a bug, the bug moves to the QA-Ready state with a reason code of Fixed. If a QA engineer verifies the claim, then the bug moves to the Closed state while retaining the Fixed reason code. Any user browsing issues can easily see the reason the bug has been closed by looking at the reason code.
Clear	Indicates that the reason code for the current state will be removed when the issue moves to the new state. Clear is a reasonable choice when an issue returns to a previous state in the workflow (for example, when a developer claims to have fixed a bug, the bug moves to the *QA-Ready* state with a reason code of Fixed). If, however, the "fix" is rejected, the issue is sent back to Development (*Dev- Ready*) and the *Fixed* reason code is removed, since this claim is disputed. When you choose **Clear**, the workflow displays `CLEAR` in the **Reason Code** field; however, the user sees an empty **Reason Code** field on the **Issue Details** page.
Set to	Indicates that you can associate a reason code with this action. Enter a keyword of up to 20 characters. All capital letters is recommended. Use **Set To** to specify a reason code when an action moves an issue to a new state that requires a reason code. In general, you should assign reason codes to all actions that developers take.

For example, in the default workflow the *Fixed* action on the *Dev-Ready* state sends the issue to the *QA-Ready* state with a reason code of *Fixed*. What this means in terms of human behavior is that when a developer claims that a bug has been fixed, he hands it off to a QA engineer, who can now easily scan the **Issue Details** page to see why the bug is in his or her inbox (the bug could also be there because the developer can't fix it or the software is working as designed).

If you do not use reason codes

Reason codes are optional keywords that can help to minimize the number of states in your workflow. For example, rather than defining several closing states (*Not a Bug*, *Not Reproducible*, *Not Repro*, and *Duplicate*) one terminal state is sufficient where reason codes help explain why the issue is in the *Closed* state. If you decide not to use reason codes, you may need to have several terminal states. A state can be made a terminal state by selecting the radio button called **No one** (Terminal State), which appears as a choice in the **State Owner** field of the **State Properties** dialog.

Standard Action Fields Tab

The **Standard Action Fields** tab on the **New Action for State** dialog defines the properties relating to the use and appearance of the action dialog, specifically:

- The **Action Notes** field on action dialogs.
- **Release Information** on action dialogs.
- **Related Issue Number** of a related issue on action dialogs.

Action Notes

Not Used The **Action** dialog box will not display the **Action Notes** field when the user takes this action.

Optional The **Action** dialog box will display the **Action Notes** field. Users have the option of entering extra information about the action they are taking.

Required The **Action** dialog box displays a required **Action Notes** field. Users must enter extra information about the action in this field.

Release Information

This group allows you to have a list appear on the action dialog from which users can select the release in which this action is taken. The release selected by the user also appears in one of the automatic fields on the **Issue Details** page. This information is particularly useful for certain kinds of actions (for example, those related to confirming, fixing, and verifying issues). It is not useful for actions that do not change the current state. The **Release Information** field has one of four values:

Not Used The action dialog will not display the list. The action dialog for the **Add Comment** action does not have a list box for release information because release information is not necessary for the **Add Comment** action.

If you choose **Not Used**, for example if the user doesn't supply information in an optional list box on the action dialog, or if an action hasn't been taken which uses the list, then the **Issue Details** page displays an empty **Action Release** field.

Optional or Required The action dialog will display an **optional** or **required** list from which the user selects a release. The last automatic field on the **Issue Details** page displays the release in which the action was taken. You need to specify the list **Label** to make it appropriate for the action. The label can be up to 20 characters long, including a trailing colon. The default field label is **Confirmed In**: for confirming actions; **Fixed In**: for fixing actions; and

Verified In: for verifying actions. The label appears on both the action dialog and on the **Issue Details** page. The list's values derive from the list of releases specified in the Administration module.

Cleared The previous value in the last automatic field of the **Issue Details** page will be removed and the field label reverted to the default, **Action Release**. The **Label** field in the **Release Information** group is disabled. **Cleared** is a good choice when an action causes an issue to return to a previous state in the workflow. Examples from the default workflow are the **Reject** and **Reopen Bug** actions. For example, a developer takes a *Fixed* action and fills in a specific release number in the **Fixed In** field. This action sends the issue to the *QA-Ready* state. The QA engineer responsible for the issue rejects the developer's claim that the bug has been fixed. The Reject action moves the issue from its current state, *QA-Ready*, back to a previous state in the workflow, *Dev-Ready*.

When an action's reason code is cleared, consider choosing `Cleared` as the value for the **Release Information** field.

The release selected by the user on the action dialog will appear on the **Issue Details** page. For example, say that a user takes the Fixed action, selects 4.1:prod as the release from the Fixed In list box, and clicks OK. When the Issue Details page reappears, the Fixed In field displays the selected release.

Related Issue Number Allows you to place a text field on the action dialog in which users can enter the number of a duplicate or related issue. This information is useful when users take the *Mark as Duplicate* action in the bug workflow or the *Already Done* action in the enhancement workflow.

Not Used	Text field will not appear on the action dialog.
Optional or Required	An optional or required text field appears on the action dialog. You need to specify the text field label. The label can be up to 20 characters long, including a trailing colon. The default field label in the bug workflow is **Duplicate of #**. The default field label in the enhancement workflow is **See Also**. The issue number specified by the user on the action dialog will appear in the **Notes** field of the **Issue Details** page's **History** tab. For example, say a user takes the *Mark as Duplicate* action on Issue #8, specifies Issue #6 as the duplicate, and clicks **OK**. When the **Issue Details** page reappears, the **Notes** field will display the phrase `Related to issue number n`, where n is the value of the **Duplicate of #** field. If the **Duplicate of #** field is optional and the user does not fill it in, then the **Notes** field will display the contents of the **Action Notes** field.

User-Defined Action Fields Tab

The **User-defined Action Fields** tab of the **New Action for State** dialog allows you to add fields to the action dialog of a given action.

Eight field positions These fields appear on the action dialog in addition to the standard action fields. **Field 1** - **Field 4** appear in the bottom left of the action dialog. **Field 5** - **Field 8** appear in the

bottom right. For example, the **Hours to Fix** field might be selected from the list to appear in the first field position (**Field 1**) on the action dialog for the *Fixed* action in the *Dev-Ready* state.

Read-only once referenced

Once a field has been referenced by an issue, it becomes read-only on the **User-defined Action Fields** tab. To see the information entered in the action dialog, you need to view the issue entry on the **Issue Detail** page's **History** tab.

Sources

The fields that appear in the list boxes on the User-defined Action Fields tab are there for one of two reasons:

- You may define new fields, as described in the procedure below. These fields are always optional. The mode cannot be changed.
- You may select the fields displayed on the custom tabs of the **Issue Details** page. For example, the action dialog might contain the **Hours to Fix** field. You might want this information to appear as well on a custom tab. Fields already defined for the custom tabs automatically appear in the list boxes of the **User-defined Action Fields** tab.

Defining Fields on an action dialog

1. Click **Issues** > **Configuration** > **Custom Field Pool**.
2. Click **Add Custom Field** button to display the **Edit Field Properties** dialog box.
3. Configure the field properties as explained in *GUI Customization Properties*.
4. The custom fields you create can then be selected from the list boxes on the **User-defined Actions Field** tab.

Permissions Tab

On the **Permissions** tab you can set security for individual actions, thus restricting actions to selected groups of users.

By default, **Apply Security** has a value of No (that means, all groups have permission to take all actions). This setting appears on the **Workflows** page as (all groups). You set security by selecting the **Yes** option and then selecting one or more groups to have permission to take the action.

Consider this example of defining security for an action: When a developer opens an **Issue Details** page for a bug in the *Dev-Ready* state, the *Cannot Fix* action is available. However when a user who is not a developer opens the **Issue Details** page for the same bug, the action is hidden.

Intelligent Assistant

To process test results, the Intelligent Assistant uses a default set of four state/reason code pairs that correspond to the four general states defined by the default workflow for bugs.

To view these default states and reason codes:

1. Click **Configuration** > **Intelligent Assistant**.
2. Customize mapping between general bug states and specific Issue Manager codes.

   If the default workflow for issues has been customized, the states and reason codes used for results processing must be customized too. For example, if the administrator changes the default workflow so that issues claimed to be fixed are assigned a state of *Unreviewed,* he must also change the state entry for *Bugs Claimed to Be Fixed But Not Tested Yet* from *QA-Ready* to *Unreviewed.*

   In addition to the issue states and reason codes specified on the Intelligent Assistant page, Intelligent Assistant also uses the terminal states defined for the issue workflow. Terminal states are defined on the Workflows page. The default terminal state is *Closed*.

Issue Archival

After using Issue Manager for a while, you may find that you have issues in the database that are no longer relevant to your efforts (for example, issues that are closed or pertain to unsupported products). The more

issues in the database, the longer actions (such as queries) take to execute. To help you improve performance, you can archive issues. You can then run actions against the smaller number of active (not archived) issues.

When you archive issues, Issue Manager moves the issues from the `DEFECT` and related tables to the `ARCHIVE` and related tables. All issue information is preserved. (By comparison, active issues remain in the `DEFECT` table, and users can take the usual actions on them.)

Users may view archived issues on the **Issue Details** page but they cannot take actions on them because they are read-only. Archived issues do not appear in users' inboxes. However, users may still run queries, reports, and graphs against archived issues. Archiving "hides" issues in a database, but it does not delete them.

Note: It is strongly recommended that you not delete issues manually, as this may destroy the integrity of your data.

You may however, want to make your production database smaller by creating a new custom database that imports only the active issues and related information from the original database.

If you archive an issue that is being displayed (but not edited) on a user's desktop, the user won't know about the change until they log out and log back in again, exits and restarts, or tries to take an action on the issue.

Note: Issue Manager warns users that they cannot take action on archived issues.

Archiving Issues

To archive issues:

1. In the menu, click **Issues** > **Configuration** > **Archive**.
2. Select the product that relates to the issues you wish to archive.
3. The **Release** field is automatically populated with the releases related to the selected product. Select the specific release that relates to the issues you wish to archive.

   You can archive issues relating to multiple releases by selecting multiple releases. Use `Ctrl+Click` to select individual releases, or `Shift+Click` to select a range of releases.
4. Click the **Archive** button.
5. Click **Yes** on the confirmation dialog to initiate the archiving process.

Setting Up Email Notification Rules

With email notification, you can instruct Issue Manager to notify you or others in your organization automatically when events of interest occur, such as when an issue changes status.

Email notification rules

Users can have email sent to them whenever the following events occur:

- An issue is reassigned to another inbox.
- An issue moves from one workflow state to another (for example, from `Unreviewed` to `Dev-Ready`.
- Any change is made to an issue that generates a new entry in the issue's history (for example, the component against which the issue is reported has changed).
- Any other special event that you define (for example, Technical Support wants to receive email when a particular bug is fixed).

The events listed above are referred to as rules. The first three rules are predefined and cannot be modified. You may define as many additional rules for special events as you want.

Triggers

An email trigger instructs Issue Manager to send email whenever a certain event occurs to an issue. A trigger consists of an email notification rule that specifies an event, the sender and recipients of the email, the message body, and an optional subject line, introduction, and trailer.

Users must apply a trigger to each issue they are interested in. Only users with the **Email notification issue triggers** privilege can add triggers to individual issues.

To view an issue's triggers, look at the **Notifications** tab of the issue's **Issue Details** page.

Rules can also be used in triggers that apply to all issues in the database; these are systemwide triggers.

Only users with the **Email notification rules and systemwide triggers** security privilege can add systemwide triggers.

Defining Email Notification Rules

Prerequisites

To define your own rules, you must:

- Have the `Email notification rules and systemwide triggers` privilege.
- Be familiar with SQL, specifically how to compose a WHERE clause.
- Be familiar with the database schema, in particular, the columns of the issue-related tables, `IM_Defect` and `IM_DefectHistory`.
- Be familiar with your workflow and the values in the workflow.

Tips for writing SQL WHERE clauses

Here are some important tips that will help you write syntactically and semantically correct WHERE clauses.

Reference both IM_Defect and IM_DefectHistory

Your SQL WHERE clauses will probably require references to both the `IM_Defect` and `IM_DefectHistory` tables. The `IM_Defect` table stores information that is current for an issue, whereas the `IM_DefectHistory` table keeps a record of all actions that have been taken on an issue, along with the effects of those changes on some issue fields.

For example, `IM_DefectHistory` stores an issue's inbox assignment before an action is taken as well as the inbox assignment after the action. These columns are **AssignedIN** for the inbox assignment prior to the action and **AssignedOUT** for the new inbox.

All actions taken on issues are recorded in the **ActionCode** field of the `IM_DefectHistory` table. These actions appear as action codes in the **Action** column of the **History** tab. You may have noticed such codes as FIXED and VERIFIED in the sample database.

To see the action codes for most of the actions in your database, look at the **Edit Action of State** dialog box of each state (exceptions are ENTERED, REASSIGNED, and MODIFIED, which are hard-coded and cannot be viewed). To access the **Edit Action of State** dialog box for a state, go to **Issues** > **Configuration** > **Workflows**, click the name of a state in the **Button Label** column. Look at the value in the **History Action Code** field.

Use table aliases

The tables have been aliased. You must use the alias `D` to refer to the `IM_Defect` table and the alias `DH` to refer to the `IM_DefectHistory`.

Identifying custom fields

Custom fields are identified in the `IM_Defect` table as `Custom1`, `Custom2`, and so on, depending on their position on the tabs. Each custom tab has up to 10 fields, 1-10 and 11-20. On **Custom Tab 1**, the first five fields appear in descending order in the left column; field 6 through field 10 appear in descending order in the right column.

To find out the schema name of a particular custom field, go to **Issues** > **Configuration** > **Custom Issue Tabs**. For example, in the dialog for the sample database, the **Add Rel Note?** check box is the fourth field in the left column of **Custom Tab 1** and so is **Custom4** in the issue table.

Note: If you change the position of a custom field, then you will need to update any email notification rules that refer to the field.

Changes to custom fields are not tracked

Issue Manager does not track changes to the custom fields in the `IM_DefectHistory` table. You can check the current value of a custom field, but you cannot refer to a previous value. For example, the WHERE clause can test whether or not the **Add Rel Note?** check box be selected, but it cannot capture a change in the value of the check box, from unchecked to checked.

Accessing check box values

The value of an unselected check box is '.' (a period). The value of a selected check box is 'X' (capital X).

For example, to retrieve all issues where Add Rel Note? is checked, you would specify as part of the WHERE clause:

```
D.Custom4 = 'X'
```

Examples of rules

Here are four situations in which you might want to create a new rule. The first two situations suggest rules used in triggers on individual issues. The last two situations suggest rules used in systemwide triggers. Following each example is the WHERE clause written against the sample database.

Example 1

Technical support and other groups want to know when a particular bug fix has been verified as fixed.

The WHERE clause looks like this:

```
DH.ActionCode = 'VERIFIED'
```

The value of **ActionCode** in the `IM_DefectHistory` table is updated whenever a user takes an action; therefore, Technical Support will receive mail only once, when the Verify action causes the action code VERIFIED to be entered in the `IM_DefectHistory` table and the History tab.

If the clause were written instead by referring to the **Reason Code** (known as `Disposition` in the database):

```
D.Disposition = 'FIXED'
```

then Technical Support would almost certainly receive mail more than once, because the Reason Code remains FIXED in the database. A user who subsequently adds a comment or saves the issue would trigger email because the rule would still match.

Example 2

An average user, one who does not act on bugs, would like to know what has happened to a bug that he entered. In particular he wants to receive email when the bug has received a developer's attention. In workflow terms, this means the issue has just left the `Dev-Ready` state, and consequently, the WHERE clause must test for state change after the action.

The WHERE clause is:

```
DH.StatusIN = 'Dev-Ready'
AND DH.StatusOUT <> 'Dev-Ready'
```

The state was `Dev-Ready` before the action, but after the developer's action, the bug moved to another state.

Example 3

The documentation department has all doc-issues sent to a group inbox, **Doc (Product A)**, rather than a user's inbox, **Judy -- Doc**. The documentation manager wants to receive email when an issue enters the group inbox.

This WHERE clause is:

```
DH.AssignedIN <> 'Doc (Product A)'
AND DH.AssignedOUT = 'Doc (Product A)'
```

It specifies that email should be sent when the inbox before the action was not Doc (Product A) but after the action is Doc (Product A). The email will be sent only once, when the doc-issue is routed to Doc (Product A).

Note that without the first part of the WHERE clause, the documentation manager would receive email when any action was taken on the doc-issue while it was assigned to Doc (Product A). Although the rule is likely to generate a large volume of mail, since the trigger needs to be applied systemwide, the two lines together of the WHERE clause restrict the rule to single event: when the inbox becomes Doc (Product A).

The rule does not need to specify the issue type to be DOC-ISSUE, although it would not be incorrect, since Doc (Product A) only holds documentation-related issues.

Example 4

The release manager wants to receive email during the next month prior to a major release regarding the most severe bugs that cannot be fixed. The WHERE clause must test for severity, Product B, and the Cannot-Fix action code assigned when a developer takes the Cannot Fix action.

The WHERE clause is:

```
D.Severity = '1: Fatal/Data Loss'
AND DH.ActionCode = 'Cannot-Fix'
AND D.ProductCode = 'Product B'
```

These restrictions are necessary because if the WHERE clause merely tests for severity, then the rule will match anytime the issue is changed and saved, because the severity will not change until a user explicitly changes it.

The release manager might receive a great deal of mail, especially if this rule is applied in a systemwide trigger. However, he can easily delete the trigger after the release cycle is over.

Tips for writing WHERE clauses

Work from the general to the specific. First, consider the general business situations that might require email notification rules. You might ask all Issue Manager users when they would like to receive email about issues. Find out precisely what information each user wants to glean from the email. For example, a user might tell you that he wants to know when a bug is fixed. Upon further discussion you might find that what he really wants to know is when the fix is verified by a QA engineer. This subtle change might require a different WHERE clause.

Then, when you're satisfied that you understand what users want, translate the situation in terms of your organization's workflow.

Finally, write the SQL WHERE clause. Try testing the WHERE clause through an advanced query to make sure you are specifying the conditions exactly as intended.

Generally speaking, rules intended for triggers on individual issues should be written simply and generically, whereas rules for systemwide triggers should be as precise and as restrictive as possible to avoid excessive email.

Ask yourself how often users want to have email triggered-only once or each time a change is generated. If a user wants mail only once, then make the rules more restrictive.

Managing Email Notification Rules

You need the `Email notification rules and systemwide triggers` security privilege to add, edit, or delete email notification rules.

To add, edit, or delete an email notification rule:

1. Click **Issues** > **Configuration** > **Notification Rules**.
2. Based on the task you wish to perform, proceed as outlined below:

Add a Rule	Click the **Add Rule** button. The **New Notification Rule** dialog is displayed. Proceed with step 3.
Edit a Predefined Rule	Predefined rules cannot be edited.
Delete a Predefined Rule	Predefined rules cannot be deleted.
Edit a Rule you have created	Click the **Edit icon** (in the **Actions** column) of the rule you wish to edit. Proceed as explained in step 3.
Delete a Rule you have created	Click the **Delete** icon (in the **Actions** column) of the rule you wish to delete. Click **OK** on the confirmation dialog to execute the deletion.

3. Specify or modify the following properties on the **New Notification Rule** dialog box:

Rule Name	Required unique name, up to 30 characters. Make the name as descriptive as possible, as users assign rules by name.
Description	Optional description of the triggering event, up to 250 characters.
WHERE clause	Required SQL WHERE clause that specifies the triggering event, up to 250 characters. Do not type the WHERE keyword.

4. Click **OK** to save your settings, or click **Cancel** to exit without saving.

Once you have defined rules, make sure that you:

Specify email addresses for all users	To make use of email notification, a user must have a valid email address specified in his or her user account.
Have your database administrator enable email notification	Once the feature is enabled, the **Notifications** tab appears on the **Issue Details** page.
Educate your users	Inform your users as to the rules that are available, and what each rule accomplishes. Users can view the rules by selecting **Issues** > **Configuration** > **Notification Rules**.

Deleting an Inbox

You can delete an inbox only if it does not contain any issues, is not referenced in routing rules, and is not the default inbox of a user. Before you try to delete an inbox, edit the routing rules to prevent new issues from being routed to the inbox, and then reassign the existing issues in the inbox.

Note: You need the **Groups, inboxes and user accounts** security privilege to add, edit, or delete inboxes.

To delete an inbox:

1. In the menu, click **Issues** > **Configuration**.
2. Click **Inboxes**. The **Inboxes** page opens.
3. In the **Actions** column of the inbox that you want to delete, click ✕. A confirmation dialog box opens.
4. Click **Yes** to remove the inbox from the system.

Managing System-wide Triggers

The following sections describe how to manage system-wide triggers.

Note: You need the `Email notification rules and systemwide triggers` security privilege to add, edit, or delete system-wide triggers.

Adding System-Wide Triggers

1. Click **Issues** > **Configuration** > **Systemwide Triggers**. All existing systemwide triggers are listed here.
2. Click **Add Systemwide Trigger**.
3. On the **New Notification** dialog box, select a rule name from the list.
4. Select a radio button in the **From** area of the dialog box to indicate whether the return address should be:
   - The user who edits the issue (thereby setting off the trigger).
   - Other user (Select a user from the list).
5. Type the email addresses of the recipient(s) in the **To** field, separating multiple entries with commas. You may select users from the **Add Address** list .

   Note: Although you can enter any email address in the **To** field, only users who have email addresses specified in their user accounts will appear in the **Add Address** list. For this reason it is recommended that email addresses be defined for all user accounts (configured via the Administration module).
6. You can fill in the optional message text fields:
   - **Subject** is an optional subject line (up to 80 characters).
   - **Introduction** is optional introductory text (up to 250 characters)
7. Choose the content type of the message:
   - Contents can be:
     - **Issue Summary**: The information on the top half of the Issue Details page.
     - **Issue Summary with Description**: Issue summary plus the information from the Description tab.
     - **Full Issue Detail**: All issue information (this is the default).
   - Trailer is an optional signature field (up to 250 characters long).
8. Click **OK** to save the trigger and close the dialog.

Editing System-Wide Triggers

1. Click **Issues** > **Configuration** > **Systemwide Triggers**. All existing systemwide triggers are listed here.
2. Click the **Edit** icon in the **Actions** column of the trigger you want to edit.
3. On the **New Notification** dialog box, select a rule name from the list.
4. Select a radio button in the **From** area of the dialog box to indicate whether the return address should be:
   - The user who edits the issue (thereby setting off the trigger).
   - Other user (Select a user from the list).
5. Type the email addresses of the recipient(s) in the **To** field, separating multiple entries with commas. You may select users from the **Add Address** list .

Note: Although you can enter any email address in the **To** field, only users who have email addresses specified in their user accounts will appear in the **Add Address** list. For this reason it is recommended that email addresses be defined for all user accounts (configured via the Administration module).

6. You can fill in the optional message text fields:
   - **Subject** is an optional subject line (up to 80 characters).
   - **Introduction** is optional introductory text (up to 250 characters)
7. Choose the content type of the message:
   - Contents can be:
     - **Issue Summary**: The information on the top half of the Issue Details page.
     - **Issue Summary with Description**: Issue summary plus the information from the Description tab.
     - **Full Issue Detail**: All issue information (this is the default).
   - Trailer is an optional signature field (up to 250 characters long).
8. Click **OK** to save the trigger and close the dialog.

Deleting System-Wide Triggers

1. Click **Issues** > **Configuration** > **Systemwide Triggers**. All existing systemwide triggers are listed here.
2. Click the **Delete** icon in the **Actions** column of the trigger you wish to delete.
3. Click **Yes** on the confirmation dialog box to execute the deletion.

Entering Parameters in Trigger Subject

You can enter parameters in the subject field of a notification trigger to generate a dynamic subject for email notifications.

The following parameters can be entered in the subject field:

{ID}	Returns the defect number
{PROD}	Returns the product
{PROJ}	Returns the project name
{USER}	Returns the user who modified the issue
{RULE}	Returns the name of the rule that triggered the notification
{SYN}	Returns the synopsis
{STATE}	Returns the current state of the issue
{SEV}	Returns the severity
{REASON}	Returns the current reason code of the issue
{CUSTOM1-20}	Returns the custom field of the specified number, e.g., {CUSTOM3} returns the value stored in custom field 3.

For example, if you want to create an email notification trigger that informs you whenever the state of an issue changes, you could add the following text into the subject field:

```
State of issue {ID} was changed by {user}.
```

If Bill would fix the currently open issue no. 2, you would receive an email notification with the following subject:

```
State of issue 2 was changed by bpetersson.
```

Enabling Basic Email Notification

A basic notification setting that can be activated by any user, regardless of assigned permissions, allows users to receive a notification when another user makes a change to an issue in their inbox or assigns a new issue to them.

Note: The subject line and content of these notifications can be configured in the file `SRFrontendBootConf.xml`.

1. Click **Configuration** > **Preferences**.
2. Select the **Notify me when users assign issues to me or make changes to issues in my inbox** checkbox.

Displaying System-Wide Triggers

When a user selects the **Show systemwide triggers** on each issue's **Notifications tab** checkbox (**Issue Manager** > **Configuration** > **Preferences**), all system-wide triggers are listed on each issue's **Notification** tab. Any triggers that are assigned to the active issue are also listed.

1. Click **Configuration** > **Preferences**.
2. Select the **Show systemwide triggers on each issue's Notifications tab** checkbox.

Reports

The Reporting Data Mart

Silk Central offers a data mart for easy access to the most important data. This makes the creation of reports easier and improves the performance due to much simpler SQL queries.

Overview

The Silk Central reporting data mart makes it easy to access data for reporting purposes. It moves data from the production tables into dedicated views which should be used for creating advanced reports. The advantages include:

- Clear naming of tables and views, allowing you to quickly locate the data you are looking for.
- Pre-processed data, giving you the possibility to access aggregated data without having to calculate it yourself.
- Performance improvement, as reports can use much simpler and faster SQL queries.
- Less dependency on production database load, which also improves performance and removes load spikes.

The current version of the data mart covers the results area. Further areas for reporting will be added to the data mart in future releases. The following tables and views are currently available:

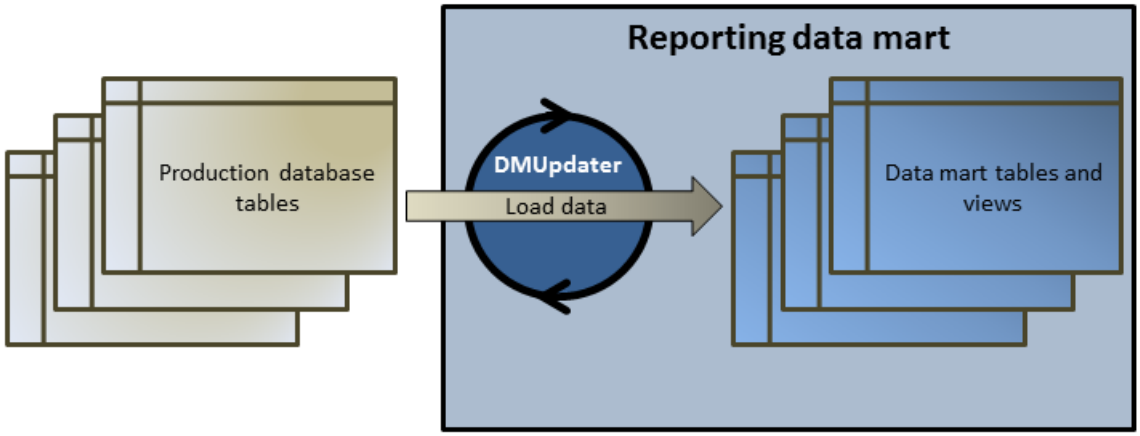
- The `DM_TestStatus` table is the basis for status-related views.
- The `RV_TestStatusExtended` view provides detailed information for a certain test execution.
- The `RV_LatestTestStatus` view provides status and extended information on the latest test run of a test within the context of an execution plan and a certain build.
- The `RV_MaxTestRunID` view is a helper to retrieve the latest test run ID for every test, execution plan, and build combination.
- The `RV_TestingCycleStatus` view provides status information for testing cycles.
- The `RV_ExecutionPlanStatusPerBuild` view retrieves the latest test status sums for every execution plan in context of builds.
- The `RV_ExecutionPlanStatusRollup` view retrieves the sums for passed, failed, and not-executed tests per execution plan or folder in context of a build.

- The `RV_ConfigurationSuiteStatus` view lists the status counts for all configuration suites and configurations per build.

Architecture

Data is periodically extracted in the background from the production database tables and loaded into the data mart tables and views for easy and fast querying. If the load on the database is not too high, this data is usually available within less than a minute after any changes have been committed. If you are logged in as a system administrator, you can check the current state of the data loading process by navigating to `http://<server>:<port>/sctm/check/db` and checking the **DM_TestStatus Table**.

Note: If you are updating from a Silk Central version that did not include the data mart (before version 13.0), the data mart tables and views are initially filled with data from the production system. Depending on your database size, this process can take some time. Once this process has completed, you can access the data.



How to Create Reports with the Data Mart

The following examples demonstrate how to create useful reports with the data mart views.

Writing Data Mart Queries

1. In the menu, click **Reports** > **Details View**.
2. In the **Reports** tree, select the folder in which you want the new report to display.
   This determines where the report is stored in the directory tree.
3. Click on the toolbar. The **Create New Report** dialog box opens.
4. Type the name of the new report.
   This is the name that is displayed in the **Reports** tree.
5. Check the **Share this report with other users** check box if you want to make this report available to other users.
6. Type a description of the report in the **Description** field.
7. Click **Advanced Query** to open the **Report data query** field. Insert previously written code or write new code directly in the field.
   The **Insert placeholder** list assists you in editing the SQL queries with pre-defined function placeholders. For details, see *SQL Functions for Custom Reports*.

   Note: If you manually edit SQL code for the query, click **Check SQL** to confirm your work.

8. Click **Finish** to save your settings.

Reliability of Tests in an Execution Plan

Problem

In a continuous integration environment tests are ideally executed at least once per day for testing the daily build and ensuring the quality of your application under test. To understand how reliable your test set is for measuring the quality of your AUT it is inevitable to sometimes have a look at how the results change over time. For example you might have tests in your test set that frequently change status, therefore being no real measure for quality.

Solution

Use the data mart view *RV_TestStatusExtended* to create a report that lists the results for a specific test in the context of a specific execution plan. This allows you to see how this test's results have changed over time. For convenience, we will narrow the list of results down to those related to tagged builds, thus looking at specific milestone builds of the application under test only. This report collects test result data for tests in the context of execution plans and builds. In the following query we:

- Select the columns we want to display from this view.
- Narrow the result down by the ID of the test we want to investigate and the ID of the execution plan in which the test belongs.
- Add a constraint to consider tagged builds only.

```
SELECT TestName, ExecutionPlanName, VersionName, BuildName, TestRunID,
  PassedCount, FailedCount, NotExecutedCount
FROM RV_TestStatusExtended
WHERE TestID = ${TESTID|1|Test ID} AND ExecutionPlanID = ${EXECUTIONPLANID|1|
Execution Plan ID} AND BuildIsTagged = 1
ORDER BY BuildOrderNumber
```

The result of the SQL query are all test runs for the selected test within the selected execution plan. In the following example you can see that the test was re-run against build `579_Drop2`:

TestName	Execution PlanName	Version Name	BuildName	TestRunID	Passed Count	FailedCount	NotExecutedCount
UI Tests	EN|SQL2012|IE9|IIS	3.0	579_Drop02	7741797	59	5	0
UI Tests	EN|SQL2012|IE9|IIS	3.0	579_Drop02	7745078	63	1	0
UI Tests	EN|SQL2012|IE9|IIS	3.0	593_Drop03	7787437	63	1	0
UI Tests	EN|SQL2012|IE9|IIS	3.0	605_Drop04	7848720	63	1	0

All Failed Tests in an Execution Folder

Problem

Typically all execution plans are structured in a folder hierarchy which identifies the different areas or purposes to which the execution plans and their tests are related. The execution plans are triggered on a

regular basis in a continuous integration environment, or occasionally over the release time frame, resulting in nice execution statistics – unfortunately for each single execution plan only.

However, sometimes you need an overall information to know how all your tests perform for a specific area or purpose to identify where the weaknesses are.

Solution

Use the data mart view *RV_LatestTestStatus* to create a report that returns a list of all failed tests for a specific execution planning hierarchy level.

The following query selects failed tests within an execution planning folder with context information like execution plan name and build name:

```
SELECT TestID, TestName, ExecutionPlanID, ExecutionPlanName, BuildName
FROM RV_LatestTestStatus lts
INNER JOIN TM_ExecTreePaths ON lts.ExecutionPlanID =
TM_ExecTreePaths.NodeID_pk_fk
WHERE TM_ExecTreePaths.ParentNodeID_pk_fk = ${executionFolderID|2179|
Execution Folder ID}
  AND StatusID IN (2, 9)
ORDER BY TestName
```

The query does the following:

- Uses the view `RV_LatestTestStatus` for retrieving the latest test run result.
- Includes the execution tree hierarchy (`TM_ExecTreePaths`) to be able to query all tests from all the execution plans within the hierarchy.
- Uses the top level folder ID from where the analysis should be started as `ParentNodeID_pk_fk`.
- Includes failed and unresolved test status only (`StatusID IN (2,9)`).

The numbers 2 and 9 for `StatusID` can be looked up in the table `TM_TestDefStatusNames`. Silk Central maps statuses as follows:

- passed and unsupported -> passed.
- failed and unresolved -> failed.
- not executed and N/A -> not executed.

The result of the SQL query are all tests in the selected execution folder for which the last run failed.

TestID	TestName	ExecutionPlanID	ExecutionPlanName	BuildName
14073	JUnitTestPackage	2184	CI Testing	352
14107	Volatile Tests	2191	Volatile Test	352

Testing Cycle Status

Problem

Testing cycles can be complex objects as they contain information about manual testers, tests, different builds and versions of products, and maybe even configurations. To not lose track it is important to find answers to questions like:

- How many tests have been finished?
- How many of them passed or failed per build?
- Are my manual testers still busy or can they do additional work?

Solution

Use the data mart view *RV_TestingCycleStatus* to create a report that shows the status of a testing cycle per tester and build that will give you an overview of how many tests are passed, failed, not executed grouped by manual tester, configuration and build.

```
SELECT BuildName, TesterLogin, TesterExecutionName,
  PassedCount, FailedCount, NotExecutedCount
FROM RV_TestingCycleStatus
WHERE TestingCycleID = ${testingCycleID|3|Testing Cycle ID}
ORDER BY BuildOrderNumber, TesterLogin
```

The query does the following:

- Uses the view `RV_TestingCycleStatus` as data source, as it contains `BuildName`, `TesterLogin` and `TesterExecutionName`, which is the generated name reflecting tester, configuration and test.
- Limits the data to the testing cycle ID that you are interested in.

The result of the SQL query shows the status per build and tester.

BuildName	TesterLogin	TesterExecution Name	PassedCount	FailedCount	NotExecuted Count
352		No specific tester (Test Assets)	0	0	1
351	admin	admin (English| SQL2008|FF| Tomcat - Test Assets)	0	1	0
352	admin	admin (English| SQL2008|FF| Tomcat - Test Assets)	0	0	1
352	gmazzuchelli	gmazzuchelli (English| Oracle10g|IE8| Tomcat - Test Assets)	0	1	1
352	jallen	jallen (German| Oracle11g|FF| Tomcat - Test Assets)	1	1	0
352	smiller	smiller (German| SQL2008|IE8|IIS - Test Assets)	1	1	0

For unassigned tests a "no specific tester" group is created with empty values for `TesterLogin`, `TesterFirstName`, and `TesterLastName`.

In case you just want to see how your test cycle is doing based on the performance of your manual testers, a slight variation of the query will help:

```
SELECT TesterLogin, TesterExecutionName, SUM(PassedCount) PassedCount,
  SUM(FailedCount) FailedCount, SUM(NotExecutedCount) NotExecutedCount
FROM RV_TestingCycleStatus
WHERE TestingCycleID = ${testingCycleID|3|Testing Cycle ID}
GROUP BY TesterLogin, TesterExecutionName
ORDER BY TesterLogin
```

The query is extended by:

- `GROUP BY TesterLogin, TesterExecutionName` for denoting the remaining columns.
- `SUM()` to the counters for aggregating the figures.

TesterLogin	TesterExecution Name	PassedCount	FailedCount	NotExecutedCount
	No specific tester (Test Assets)	0	0	1
admin	admin (English|SQL2008|FF|Tomcat - Test Assets)	0	1	1
gmazzuchelli	gmazzuchelli (English|Oracle10g|IE8|Tomcat - Test Assets)	0	1	1
jallen	jallen (German|Oracle11g|FF|Tomcat - Test Assets)	1	1	0
smiller	smiller (German|SQL2008|IE8|IIS - Test Assets)	1	1	0

Execution Tree Status

Problem

It is a common practice to have execution plans in a hierarchical structure that represents different testing areas or purposes. In some cases, for example for knowing the test status and therefore the quality of an area or purpose, you will want to know the overall passed, failed, and not executed count.

Solution

Use the data mart view *`RV_ExecutionPlanStatusRollup`* to create a report that returns the passed, failed, and not executed counts grouped by build for a specific execution planning folder.

```
SELECT BuildName, PassedCount, FailedCount, NotExecutedCount
FROM RV_ExecutionPlanStatusRollup
WHERE ExecutionFolderID = ${executionPlanID|43|Execution Plan ID}
```

The query does the following:

- Selects `BuildName` and the status counts from the `RV_ExecutionPlanStatusRollup` view.
- Specifies the top-level folder you want the status from (`ExecutionFolderID`).

The result of the SQL query shows the status of your test runs in all execution plans of the selected folder, aggregated per build.

BuildName	PassedCount	FailedCount	NotExecutedCount
351	0	0	2
352	15	7	1

If you are interested in more details, for example the status counts for each execution plan within the selected hierarchy, you can use the data mart view *`RV_ExecutionPlanStatusPerBuild`*:

```
SELECT eps.BuildName, eps.ExecutionPlanID, SUM(eps.PassedCount) PassedCount,
  SUM(eps.FailedCount) FailedCount, SUM(eps.NotExecutedCount) NotExecutedCount
FROM RV_ExecutionPlanStatusPerBuild eps
```

```
INNER JOIN TM_ExecTreePaths etp ON eps.ExecutionPlanID = etp.NodeID_pk_fk
WHERE etp.ParentNodeID_pk_fk = ${execFolderID|44|Execution Folder ID}
GROUP BY eps.ExecutionPlanID, eps.BuildOrderNumber, eps.BuildName
ORDER BY eps.BuildOrderNumber, eps.ExecutionPlanID
```

The query does the following:

- Uses the `RV_ExecutionPlanStatusPerBuild` view to access execution-plan specific data (`ExecutionPlanID` and `ExecutionPlanName`). The previously used `RV_ExecutionPlanStatusRollup` view contains pre-aggregated data (summed up data), which is not suitable for the purpose here as you would get results not only for execution plans but for the folder nodes as well.
- Selects all nodes within a specific folder with a `JOIN` of the `TM_ExecTreePath` table to bring in hierarchy information.
- Specifies the top-level folder with `ExecutionFolderID`. As the table `TM_ExecutionTreePaths` also contains a self-reference for every execution plan, you could run this query with an execution plan ID for `ParentNodeID_pk_fk` too, which would return the rows for the specific execution plan.
- Adds `ORDER BY BuildOrderNumber` and `ExecutionPlanID` to get a nicely ordered result, showing the oldest builds and their execution plans first.

The result of the SQL query shows the status of your test runs in all execution plans of the selected folder.

BuildName	ExecutionPlanID	PassedCount	FailedCount	NotExecutedCount
351	2307	0	0	2
352	2184	11	2	0
352	2185	0	3	0
352	2186	2	1	0
352	2187	1	0	0
352	2191	0	1	0
352	2307	1	0	1

Configuration Suite Status

Problem

Configuration suites allow you to execute the same set of tests against multiple configurations, for example multiple browsers or operating systems. To be able to make reasonable statements related to quality and reliability of your application under test you will want to keep track of the results for each individual configuration.

Solution

Use the data mart view *`RV_ConfigurationSuiteStatus`* to create a report that returns the passed, failed, and not executed counts for each configuration per build.

```
SELECT BuildName, ConfigurationName, PassedCount, FailedCount,
NotExecutedCount
FROM RV_ConfigurationSuiteStatus
WHERE ConfigurationSuiteID = ${configSuiteID|97|Configuration Suite ID}
ORDER BY BuildOrderNumber, ConfigurationName
```

The query does the following:

- Retrieves the status counts per build of test runs from the `RV_ConfigurationSuiteStatus` view.
- Narrows the results down to the configuration suite (`ConfigurationSuiteID`).

The result of the SQL query shows the status of your test runs for each configuration.

BuildName	ConfigurationName	PassedCount	FailedCount	NotExecutedCount
350	Chrome	0	1	0
350	Firefox	0	1	0
350	Internet Explorer	0	1	0
351	Chrome	1	0	0
351	Firefox	1	0	0
351	Internet Explorer	0	1	0
352	Chrome	1	0	0
352	Firefox	1	0	0
352	Internet Explorer	1	0	0

In this example, we use the ID of the configuration suite to get all configurations. It is also possible to restrict the result to specific builds, in which case you would have to include `BuildID`, `BuildName`, or `BuildOrderNumber` in the where clause.

Note: The view *`RV_ConfigurationSuiteStatus`* only contains aggregated status counts without any test-specific data. To retrieve additional test-specific data, you can use, for example, the view *`RV_LatestTestStatus`*.

Troubleshooting

Wrong or Missing Data

Problem

When querying data from a data mart table or view, the listed results are not up to date or missing.

Resolution

The data mart tables and views are updated periodically in the background, but not in real time. Due to this, it can take a few seconds up to a few minutes for the data to be loaded into the data mart tables. If your system is running a heavy load, this influences the performance of the background process which is loading the data. The reason is that other processes are prioritized higher and may temporarily block the DataMartUpdater background job. Run your query again later to retrieve updated data.

If you are logged in as a system administrator, you can check the current state of the data loading process by navigating to `http://<server>:<port>/sctm/check/db` and checking the **DM_TestStatus Table**.

Note: Tests and depending test runs are removed from the data mart if a test is deleted. This also applies to deleted tests due to cleaning up test packages.

The Data Mart Slows Down the System

Problem

Since running the data mart, the system's overall performance seems to be poorer or behaves inconsistently.

Resolution

While this should not happen, you can turn off the data mart to check if this actually resolves your issues:

1. Stop the application server service.
2. Open the `TmAppServerHomeConf.xml` file with a text editor. This file is located in the `/conf/appserver` folder of the Silk Central directory on the application server.
3. Locate the `Config/DataMart/Enabled` XML tag and set the value to `false`.
4. Restart the application server service.

Reference: Data Mart Tables and Views

The following data mart tables and views are available for easy and fast reporting.

DM_TestStatus

The `DM_TestStatus` table is the basis for status-related views.

The other data mart views usually provide easier access to detailed data, as this table does not provide direct access to information like the name of a test. The key of this table is the combination of the columns `TestID`, `ExecutionPlanID`, `BuildID`, and `TestRunID`.

Row	Description
`TestID`	Identifier of the test.
`ExecutionPlanID`	Identifier of the execution plan.
`BuildID`	Identifier of the build.
`TestRunID`	Identifier of the test run.
`ExecutionRunID`	Identifies in which execution run this result was generated.
`StatusID`	Status of this test run (see `TM_TestDefStatusNames`).
`ReasonID`	Reason for the status of this test run (see `TM_ResultStatusReasons`). Can be null.
`PassedCount`	Sum of all passed tests, which is 0 or 1 for common tests and can be more for package test roots.
`FailedCount`	Sum of all failed tests, which is 0 or 1 for common tests and can be more for package test roots.
`NotExecutedCount`	Sum of all not-executed tests, which is 0 or 1 for common tests and can be more for package test roots.
`ProjectID`	ID of the project that this row belongs to.
`TestStartTime`	Time when the test run started (UTC).
`ExecutionStartTime`	Time when the execution run started (UTC).
`TestDurationInMilliseconds`	Duration of the test run in milliseconds.
`IsBlocked`	Flags the test run as blocked/unblocked
`DbChangedAt`	Time when this row was last updated by the reporting data mart.

RV_TestStatusExtended View

The `RV_TestStatusExtended` view provides detailed information for a certain test execution.

This view contains all test runs, in contrast to the view *`RV_LatestTestStatus`* which contains only the latest test run of a test within the context of an execution plan and a certain build. You can use this view for

example to create a *report that lists all test runs of your tagged builds*. The key of this table is the combination of the columns `TestID`, `ExecutionPlanID`, `BuildID`, and `TestRunID`.

Note: Tests and depending test runs are removed from the data mart if a test is deleted. This also applies to deleted tests due to cleaning up test packages.

Row	Description
`TestID`	Identifier of the test.
`ExecutionPlanID`	Identifier of the execution plan.
`BuildID`	Identifier of the build.
`TestRunID`	Identifier of the test run.
`ExecutionRunID`	Identifies in which execution run this result was generated.
`StatusID`	Status of this test run (see `TM_TestDefStatusNames`).
`ReasonID`	Reason for the status of this test run (see `TM_ResultStatusReasons`). Can be null.
`PassedCount`	Sum of all passed tests, which is 0 or 1 for common tests and can be more for package test roots.
`FailedCount`	Sum of all failed tests, which is 0 or 1 for common tests and can be more for package test roots.
`NotExecutedCount`	Sum of all not-executed tests, which is 0 or 1 for common tests and can be more for package test roots.
`ProjectID`	ID of the project that this row belongs to.
`TestStartTime`	Time when the test run started (UTC).
`ExecutionStartTime`	Time when the execution run started (UTC).
`TestDurationInMilliseconds`	Duration of the test run in milliseconds.
`IsBlocked`	Flags the test run as blocked/unblocked
`DbChangedAt`	Time when this row was last updated by the reporting data mart.
`TestName`	Name of the test.
`TestDescription`	Description of the test.
`TestParentID`	ID of the test's parent.
`PlannedTimeInMinutes`	Time planned for this test in minutes.
`Reason`	Name of the reason. Can contain reasons that have been deleted in the meantime.
`ExecutionPlanName`	Name of the execution plan.
`ExecutionPlanDescription`	Description of the execution plan.
`ExecutionParentFolderID`	ID of the execution plan's parent.
`Priority`	Priority of the execution plan: 0 = Low, 1 = Medium, 2 = High.
`BuildName`	Name of the build used for this test run.

Row	Description
BuildDescription	Description of the build.
BuildOrderNumber	Order number of the build.
BuildIsTagged	1 if the build is tagged, 0 otherwise.
VersionID	ID of the version that the build belongs to.
VersionName	Name of the version.
VersionDescription	Description of the version.
VersionOrderNumber	Order number of the version.
ProductID	ID of the product that the build belongs to.
ProductCode	Name of the product.
ProductDescription	Description of the product.
ProductOrderNumber	Order number of the product.

RV_LatestTestStatus View

The RV_LatestTestStatus view provides status and extended information on the latest test run of a test within the context of an execution plan and a certain build.

Use the *RV_TestStatusExtended* view to retrieve information about all test runs. You can use this view to create a *report that lists all failed tests in an execution folder*. The key of this table is the combination of the columns TestID, ExecutionPlanID, BuildID, and TestRunID.

Row	Description
TestID	Identifier of the test.
ExecutionPlanID	Identifier of the execution plan.
BuildID	Identifier of the build.
TestRunID	Identifier of the test run.
ExecutionRunID	Identifies in which execution run this result was generated.
StatusID	Status of this test run (see TM_TestDefStatusNames).
ReasonID	Reason for the status of this test run (see TM_ResultStatusReasons). Can be null.
PassedCount	Sum of all passed tests, which is 0 or 1 for common tests and can be more for package test roots.
FailedCount	Sum of all failed tests, which is 0 or 1 for common tests and can be more for package test roots.
NotExecutedCount	Sum of all not-executed tests, which is 0 or 1 for common tests and can be more for package test roots.
ProjectID	ID of the project that this row belongs to.
TestStartTime	Time when the test run started (UTC).
ExecutionStartTime	Time when the execution run started (UTC).

Row	Description
TestDurationInMilliseconds	Duration of the test run in milliseconds.
IsBlocked	Flags the test run as blocked/unblocked
DbChangedAt	Time when this row was last updated by the reporting data mart.
TestName	Name of the test.
TestDescription	Description of the test.
TestParentID	ID of the test's parent.
PlannedTimeInMinutes	Time planned for this test in minutes.
Reason	Name of the reason. Can contain reasons that have been deleted in the meantime.
ExecutionPlanName	Name of the execution plan.
ExecutionPlanDescription	Description of the execution plan.
ExecutionParentFolderID	ID of the execution plan's parent.
Priority	Priority of the execution plan: 0 = Low, 1 = Medium, 2 = High.
BuildName	Name of the build used for this test run.
BuildDescription	Description of the build.
BuildOrderNumber	Order number of the build.
BuildIsTagged	1 if the build is tagged, 0 otherwise.
VersionID	ID of the version that the build belongs to.
VersionName	Name of the version.
VersionDescription	Description of the version.
VersionOrderNumber	Order number of the version.
ProductID	ID of the product that the build belongs to.
ProductCode	Name of the product.
ProductDescription	Description of the product.
ProductOrderNumber	Order number of the product.

RV_MaxTestRunID View

The RV_MaxTestRunID view is a helper to retrieve the latest test run ID for every test, execution plan, and build combination.

The key of this table is the combination of the columns TestID, ExecutionPlanID and BuildID.

Row	Description
TestID	Identifier of the test.
ExecutionPlanID	Identifier of the execution plan.
BuildID	Identifier of the build.

Row	Description
MaxTestRunID	Identifies the latest test run for the test in context of the execution plan and build.

RV_TestingCycleStatus

The RV_TestingCycleStatus view provides status information for testing cycles.

You can use this view to create a *report that shows the current status of a testing cycle*.

TestingCycleID denotes the testing cycle and TesterExecutionID (as well as TesterExecutionName, UserID, CapacityInCycle, TesterLogin, TesterFirstName, TesterLastName) is used to identify the assigned tester in the testing cycle. For the tests which are not assigned to a specific tester, the UserID, CapacityInCycle, TesterLogin, TesterFirstName, and TesterLastName are null. The key of this table is the combination of the columns TesterExecutionID and BuildID.

Row	Description
TestingCycleID	Identifier of the testing cycle.
TesterExecutionID	Identifies the group of tests that are assigned to a specific tester.
TesterExecutionName	The generated name for the group of tests that are assigned to a specific tester.
UserID	The user ID of the tester.
CapacityInCycleInMinutes	The capacity for this user in this testing cycle in minutes.
TesterLogin	Login name of the tester.
TesterFirstName	First name of tester.
TesterLastName	Last name of tester.
PassedCount	Sum of all passed tests.
FailedCount	Sum of all failed tests.
NotExecutedCount	Sum of all not-executed tests.
ProjectID	Identifier of the project.
BuildID	Identifier of the build.
BuildName	Name of the build used for this test run.
BuildDescription	Description of the build.
BuildOrderNumber	Order number of the build.
BuildIsTagged	1 if the build is tagged, 0 otherwise.
VersionID	ID of the version that the build belongs to.
VersionName	Name of the version.
VersionDescription	Description of the version.
VersionOrderNumber	Order number of the version.
ProductID	ID of the product that the build belongs to.
ProductCode	Name of the product.

Row	Description
ProductDescription	Description of the product.
ProductOrderNumber	Order number of the product.

RV_ExecutionPlanStatusPerBuild
The RV_ExecutionPlanStatusPerBuild view retrieves the latest test status sums for every execution plan in context of builds.

Folders and child nodes are not considered. You can use this view to create a *report that shows the status of your test runs for each execution plan in a folder*. In contrast to *RV_ExecutionPlanStatusRollup*, this view has a slight performance advantage as no hierarchy is considered for retrieving the data. The key of this table is the combination of the columns ExecutionPlanID and BuildID.

Row	Description
ExecutionPlanID	Identifier of the execution plan.
BuildID	Identifier of the build.
ExecutionPlanName	Name of the execution plan.
ExecutionParentFolderID	ID of the execution plan's parent.
PassedCount	Sum of all passed tests.
FailedCount	Sum of all failed tests.
NotExecutedCount	Sum of all not-executed tests.
ProjectID	ID of the project that the execution plan belongs to.
BuildName	Name of the build used for this test run.
BuildDescription	Description of the build.
BuildOrderNumber	Order number of the build.
BuildIsTagged	1 if the build is tagged, 0 otherwise.
VersionID	ID of the version that the build belongs to.
VersionName	Name of the version.
VersionDescription	Description of the version.
VersionOrderNumber	Order number of the version.
ProductID	ID of the product that the build belongs to.
ProductCode	Name of the product.
ProductDescription	Description of the product.
ProductOrderNumber	Order number of the product.

RV_ExecutionPlanStatusRollup
The RV_ExecutionPlanStatusRollup view retrieves the sums for passed, failed, and not-executed tests per execution plan or folder in context of a build.

In case of folders, the counters include the numbers from all children. You can use this view to create a *report that shows the status of all test runs in a folder*. The key of this table is the combination of the columns ExecutionFolderID and BuildID.

Row	Description
ExecutionFolderID	Identifier of the execution plan.
BuildID	Identifier of the build.
PassedCount	Sum of all passed tests.
FailedCount	Sum of all failed tests.
NotExecutedCount	Sum of all not-executed tests.
ProjectID	ID of the project that the execution plan belongs to.
BuildName	Name of the build used for this test run.
BuildDescription	Description of the build.
BuildOrderNumber	Order number of the build.
BuildIsTagged	1 if the build is tagged, 0 otherwise.
VersionID	ID of the version that the build belongs to.
VersionName	Name of the version.
VersionDescription	Description of the version.
VersionOrderNumber	Order number of the version.
ProductID	ID of the product that the build belongs to.
ProductCode	Name of the product.
ProductDescription	Description of the product.
ProductOrderNumber	Order number of the product.

RV_ConfigurationSuiteStatus

The RV_ConfigurationSuiteStatus view lists the status counts for all configuration suites and configurations per build.

You can use this view to create a *report that shows the status of all test runs for each configuration in a configuration suite*. The key of this table is the combination of the columns ConfigurationID and BuildID.

Row	Description
ConfigurationSuiteID	Identifier of the configuration suite.
ConfigurationID	Identifier of the configuration.
ConfigurationName	Name of the configuration.
BuildID	Identifier of the build.
PassedCount	Sum of all passed tests.
FailedCount	Sum of all failed tests.
NotExecutedCount	Sum of all not-executed tests.
ProjectID	ID of the project that this row belongs to.
BuildName	Name of the build used for this test run.
BuildDescription	Description of the build.

Row	Description
`BuildOrderNumber`	Order number of the build.
`BuildIsTagged`	`1` if the build is tagged, `0` otherwise.
`VersionID`	ID of the version that the build belongs to.
`VersionName`	Name of the version.
`VersionDescription`	Description of the version.
`VersionOrderNumber`	Order number of the version.
`ProductID`	ID of the product that the build belongs to.
`ProductCode`	Name of the product.
`ProductDescription`	Description of the product.
`ProductOrderNumber`	Order number of the product.

Reporting Area

Overview

The default reports that ship with Silk Central are visible in all projects and are listed under **Global Reports** in the **Reports** tree. These reports cannot be modified, but you can make copies that you can customize to your needs. Creating your own custom reports within the **Global Reports** tree makes your reports available for all projects too. You can also copy reports between project trees and the **Global Reports** tree. The concept of global reports allows you to flexibly administrate reports across all projects within Silk Central.

Limitations:

- Because global reports are not in context of a project, they need to be advanced reports (SQL).
- Global reports cannot be sub-reports of project reports, and sub-reports are not available in the global reports section.

Shared Global Report Permissions

Because shared global reports are available in all projects for all users, user roles that are able to update and delete them require special permissions: **Manage shared global reports** and **Delete shared global reports**. Non-shared global reports can be updated and deleted by user roles with the standard report permissions for updating and deleting reports. This implies the following special scenarios:

- The option **Share this report with other users** is disabled in global reports and folders if the user does not have the **Manage shared global reports** permission
- When pasting a copied shared report into the **Global Reports** tree without the **Manage shared global reports** permission, the pasted report is set to non-shared

Creating and Customizing Reports

Creating Reports

Silk Central offers reports that quickly and easily transform data into intuitive charts and graphs. Pre-installed reports are available for the **Requirements**, **Tests**, and **Issues** areas.

Reports are created using either BIRT RCP Designer, an open-source, Eclipse-based report tool, or Microsoft® Word® or Microsoft® Excel® report templates. Silk Central is tightly integrated with BIRT RCP Designer to make it easy for you to generate reports on test management data. The reporting functionality

in Silk Central is highly customizable. Numerous pre-installed reports and report templates provide out-of-the-box options for a wide range of reporting needs. Simple GUI-based tools allow you to edit the pre-installed reports and create reports of your own. For users with SQL knowledge, there is virtually no limit to how data can be queried and presented in custom reports.

Tip: If a blank report is generated, the cause may be that there are not any data in the project you selected, or you may not be connected to the appropriate Silk Central database. Reports are not available offline unless your Silk Central database is accessible locally.

Creating New Reports

To create a new report:

1. In the menu, click **Reports** > **Details View**.
2. In the **Reports** tree, select the folder in which you want the new report to display.
   This determines where the report is stored in the directory tree.
3. Click on the toolbar. The **Create New Report** dialog box opens.
4. Type the name of the new report.
   This is the name that is displayed in the **Reports** tree.
5. Check the **Share this report with other users** check box if you want to make this report available to other users.
6. In the **Timeout [s]** field, type the maximum time period in seconds that Silk Central should wait for SQL queries to complete.
7. From the **Default tab** list, select the tab that you want to be directed to when you select this report from one of the context-sensitive report lists.
8. Select the corresponding result type from the **Result category** list.
   This setting specifies the database table and view that is to be filtered for the report. The following result types are available:

Result Type	Description
Requirement	Returns requirements available in the **Requirements** module that meet the query criteria.
Test	Returns tests available in the **Tests** area that meet the query criteria.
Test Execution	Returns executed test results from the **Executions** area that meet the query criteria.
Execution Plan	Returns execution plans from the execution area.
Issue	Returns issues, including imported issues.
Requirement Progress Builds	Contains information on requirements progress per build so that you can see how requirements develop across builds.
Requirement Progress Days	The same as Requirement Progress Builds, but shows development on a daily basis.
Test Progress Builds	Shows how tests develop across builds.
Test Progress Days	Same as above, but shows development on a daily basis.

   Each result type offers a set of selection criteria. Based on the result type you have selected, specify an appropriate **Selection criteria** for your report. These criteria typically group properties based on a view or some other intuitive grouping, for example custom properties.
9. From the **Property** list, select the property that is to be filtered on.
   For some selection criteria, properties are dynamic.

10. Select an **Operator** for the query.

    The available operators depend on the property. Example operators are =, `not`, `like`, and `not like`. Strings are always compared lowercase. Allowed wildcards for strings are "*" and "?", where * matches any characters and ? matches exactly one character.

11. Select or specify the **Value** that the query is to be filtered on.

    For date-based properties, the **Value** field is replaced with a calendar tool that you can use to select a specific date.

12. *Optional:* To add an additional query string to this report, click **More**. An existing query string can be deleted by clicking the string's **Delete** button. When multiple query strings are defined, **AND** and **OR** option buttons are displayed next to **More**. Use these option buttons to define if the queries should be considered cumulatively, or if only one query string's criteria needs to be met.

13. Click **Next** to configure report columns on the **New Report** dialog box.

14. Click **Add Columns**. The **Add Columns** dialog box lists all available report columns.

15. Select the columns that you want to have included in the report and click **OK**.

    You can select multiple columns with **Ctrl+Click**.

    Note: For test-planning reports, the list of available column names is enhanced with the column names from the *LQM_v_tests* table. For details, refer to the *Silk Central Database Model Schema*.

    The selected columns display in tabular format on the **New Report** dialog box.

16. *Optional:* Configure how each report column is to be displayed. For each column, specify a sort direction, `ascending`, `descending`, or `unsorted`, using the up/down arrows in the **Sorting** column.

17. When multiple columns are selected for sorting, a list box is displayed in the **Sort Order** column that allows you to more easily edit the column-sort order. Set these numbers as required.

18. Give each column an **Alias**.

    This is the name by which each column will be labeled in the generated report.

19. With grouping, you can take advantage of SQL aggregation features, for example when selecting a number of elements or querying a total sum of values. Check the **Group by** check box to specify that SQL group by functions are to be applied.

20. Columns that are not selected for SQL group by functions are set to aggregation by default, which means a single aggregate value is calculated. From the **Aggregation** list, select the appropriate aggregation type.

    The following types are available:

    - Count
    - Sum
    - Average
    - Minimum
    - Maximum

21. The **Actions** column enables you to move column listings up and down in the view, or to delete a column.

22. Click **Finish** to complete your new report.

SQL Functions for Custom Reports

To assist in writing advanced queries, placeholders are available for each function. Function placeholders are replaced with SQL code upon execution. Functions are used like parameters, but their names have a $ (dollar symbol) as a prefix. Unlike parameters, placeholders are defined report elements that cannot be customized per execution.

The following table lists all available function placeholders:

Function	What it does	Example
$TODAY	Returns the current systemdate on the database server. You can also write `$TODAY-1` for yesterday or `$TODAY-7` for a week ago.	`CreatedAt > ${$TODAY}`
$DATE(column)	Returns the date but not the time.	
$DATE('string')	Converts the given string to a database date.	`CreatedAt > ${$DATE('01/10/2005')}`
$DAYS[p1;p2]	Calculates the difference in days between the two given parameters. The two parameters can be a column within the table/view or `$TODAY`.	The following example returns the rows created within the last week: `${$DAYS[CreatedAt;$TODAY]} > 7`
$WEEK(param)	Returns the week-number of the given parameter, which can be `$TODAY` or a column.	
$MONTH(param)	Returns the month of the year as a number of the given parameter, which can be `$TODAY` or a column.	
$YEAR(param)	Returns the year as a number of the given parameter, which can be `$TODAY` or a column.	
$USERID	The ID of the currently logged in user.	
$USERNAME	The name of the currently logged in user.	
$PROJECTID	The ID of the currently selected project.	
$PROJECTNAME	The name of the currently selected project.	
$REPORTNAME	The name of the currently selected report.	
$REPORTID	The ID of the currently selected report.	

Below is the code of the pre-installed *Requirement with Child Requirements* report. With this report, a selected requirement is shown with its requirement ID. Full details regarding the requirement's child requirements are displayed. Although not a custom report, this report is a helpful example because it makes use of the `$PROJECTID` function. It also includes two parameters, reqID (requirement ID) and reqProp_Obsolete_0 (show obsolete requirements).

```
SELECT r.ReqID, r.ReqCreated, r.ReqName, r.TreeOrder
   FROM RTM_V_Requirements r INNER JOIN
   TM_ReqTreePaths rtp ON (rtp.ReqNodeID_pk_fk = r.ReqID)
   WHERE rtp.ParentNodeID_pk_fk=${reqID|22322|Requirement ID} AND
   r.ProjectID = ${$PROJECTID} AND
   r.MarkedAsObsolete=${reqProp_Obsolete_0|0|Show obsolete Requirements}
   ORDER BY r.TreeOrder ASC
```

Writing Advanced Queries with SQL

Advanced reports can be created through manual SQL coding. Virtually any reporting option is available if you know the database schema. Clicking **Advanced Query** hides the query string list boxes and opens the **Report data query** field in which you can insert existing code or write new SQL code.

Restriction: The SQL statement `select top` is not supported.

One approach is to begin query-string construction using the list boxes as outlined in *Creating New Reports*. If the report criteria are valid, the equivalent SQL statement will be generated and displayed, and then move to advanced mode for further modifications.

Note: If you switch from advanced mode back to simple mode the changes you made within the code will be lost.

To write an advanced query directly in SQL:

1. In the menu, click **Reports** > **Details View**.
2. In the **Reports** tree, select the folder in which you want the new report to display.

   This determines where the report is stored in the directory tree.
3. Click on the toolbar. The **Create New Report** dialog box opens.
4. Type the name of the new report.

   This is the name that is displayed in the **Reports** tree.
5. Check the **Share this report with other users** check box if you want to make this report available to other users.
6. Type a description of the report in the **Description** field.
7. Click **Advanced Query** to open the **Report data query** field. Insert previously written code or write new code directly in the field.

   The **Insert placeholder** list assists you in editing the SQL queries with pre-defined function placeholders. For details, see *SQL Functions for Custom Reports*.

   Note: If you manually edit SQL code for the query, click **Check SQL** to confirm your work.
8. Click **Finish** to save your settings.

Working with Sub-Reports

Adding Sub-Reports

To aggregate the results from multiple reports into the currently selected report, you can add sub-reports. When adding a report as a sub-report, the result columns and rows of the sub-report are concatenated to the results of the selected report.

To add a report as a sub-report:

1. In the menu, click **Reports** > **Details View**.
2. Select a report in the **Reports** tree.
3. Click the **Properties** tab.
4. Click **Add Sub-Report**.

   The **Add Sub-Report** dialog box appears.
5. From the **Reports** tree, select the sub-report you want to append to the current report.
6. Click **OK** to complete the addition of the sub-report. Sub-reports are displayed on the associated report's **Properties** page in the **Sub-Reports** section.

Deleting Sub-Reports

To delete a sub-report:

1. In the menu, click **Reports** > **Details View**.
2. Select the report in the **Reports** tree that has the associated sub-report that you want to delete.

3. Click the **Properties** tab.
4. Click ✕ in the **Actions** column of the sub-report that you want to delete.
5. Click **Yes** on the confirmation dialog box to confirm the deletion.

Report Templates

Uploading Report Templates

To upload a template from your local system:

1. In the menu, click **Reports** > **Details View**.
2. Select the report to which you want to associate the template.
3. Click the **Report** tab.
4. Click the **Click here to upload a new report template** link to open the **Upload Template** dialog box.
5. Give the template a meaningful **Name** and **Description**.
6. In the **Projects** list box, select the project to which you would like to make the template available or select **All Projects** to have the template associated with all projects.
7. Click **Browse** to browse to and select the template on your local system.
8. Click **OK** to upload the template.

Downloading Report Templates

Silk Central report templates render report data into formats that meet your specific needs. Templates can take the form of Word documents, Excel spreadsheets, BIRT RCP Designer templates, XML, or CSV files. Downloading Silk Central report templates to your local system enables you to edit them through BIRT Report Designer or Microsoft Excel or Word. After you download and edit a report, you can upload it to make it available to other users. For details see the related *Uploading Report Templates* procedure.

To download an existing report template for editing:

1. In the menu, click **Reports** > **Details View**.
2. Select a report that utilizes the template you want to modify from the **Reports** tree.
3. Click the **Properties** tab.
4. Click the download link of the template you want to download.

   The available download links are:

Generate empty BIRT report template	You receive the report data as an empty generic BIRT report template. The datasource is already configured.
Generate Excel report template	You receive an Excel file with a sheet named DATA that contains the data, for example in CSV format. This is the only affected sheet in the template, so you can specify information in adjoining sheets, for example diagrams.
Download sample Word report template	You receive a Word .DOCX file that you can use to create a custom Word report. The Word file contains examples of how to customize the template to add the data that you need for your report.

Download report data as .CSV file	You receive the report data as a Comma Separated Values (CSV) file. Depending on your local settings, you will receive ‘,’ or ‘;’ as the delimiter character. The date is also formatted based on user settings.
Download report data as .XML file	You receive the report data as XML. The advantage of this approach over CSV is that you retain all subreport data. Accessing data outside of Silk Central - You can call a specific URL that offers the report data using the following format: `http://server/servicesExchange?hid=reportData&userName=<username>&passWord=<password>&reportFilterID=<ID of the report>&type=<csv|xml>`.

5. The **File Download** dialog box displays. Click **Save** and download the report file to your local system as a `.rptdesign`, `.docx`, or `.xls` file, depending on the report type that you are downloading.
6. Edit the report based on your needs using either the BIRT RCP Designer, for `.rptdesign` files, Word for .docx, or Excel, for `.xls` files.

Removing Report Templates

To remove the template of the current report:

1. In the menu, click **Reports** > **Details View**.
2. In the **Reports** tree, select the report from which you want to delete a template.
3. Click the **Report** tab.
4. Click ✕.
5. Click **Yes** on the subsequent confirmation dialog box.

Report Subscriptions

The **Subscriptions** tab in the reporting unit allows you to subscribe to reports. You can customize when, where, and how you receive the report as well as modify report parameters. The report is created in the background on the application server, per a selected schedule, and the subscriber is sent the report via email or the report can be displayed in a dashboard panel and is also accessible from external sites through a URL.

Subscribing to a Report

Please note the following when working with subscriptions:

- If the user who created the report is deleted, the schedule for the report is removed, disabling the report. Another user must modify the subscription to re-activate it.
- Subscriptions are not copied when you copy or baseline a project.
- Subscriptions are not exported when you export a project.
- After a subscription is created, you can edit it or delete it using icons in the **Actions** column.
- For dashboard panel and externally accessed reports, only the last report result is stored and there is no history available.

1. In the menu, click **Reports** > **Details View**.
2. Select a report in the **Reports** tree.
3. Click the **Subscriptions** tab.
4. Click **Add Subscription**. The **Edit Subscription** dialog box opens.
5. Give your subscription a name in the **Name** field.
6. To modify the subscription parameters, click **Edit Parameters**. The **Edit Parameter** dialog box opens. Change the **Value** and click **OK**.

7. Select a schedule from the **Schedule** list. If the schedule you want does not exist, you need to create it.
8. In the **Result Handling** area, pick one of the following options:
   - If you want to send the report as an email, click **Send as Email** and select the **Format**: `Report template (Excel, BIRT)`, `PDF (data table)` or `XLSX (data table)`. The available options depend on the existence of the configured template. Then, enter the **Email addresses** where the report will be sent. You can send the report to multiple email addresses by separating them with commas, semi-colons or blanks.
   - If you want to make the report available in a dashboard panel or from external sites, click **Provide for dashboard and external access**. Selecting this option makes the report available in the **Report Subscription** dashboard panel, and you can embed the provided link in Websites, emails, and more. This is a permanent link that does not change and requires no login or license to access. Note that when using a template, only BIRT templates are graphically rendered. Other templates display as data table.
9. Click **OK**. The new subscription is listed in the **Subscriptions** list.

Example: Embedding the External Access Link in an IFrame

```
<html>
...
<body>
...
<iframe src="http://<front-end server>:19120/servicesExchange?
hid=reportOutput&linkId=ec36a037-a59a-4899-a98c-5a4a4644811f"
 width="700" height="500"></iframe>
...
</body>
</html>
```

Adding a Report to a Dashboard Panel

Using any report available in the **Reports** unit, the **Report Subscription** panel of your dashboard allows you to display an existing report. First, create and configure your report, and then add the panel to your dashboard.

1. In the menu, click **Reports** > **Details View**.
2. Select a report in the **Reports** tree.
3. Click the **Subscriptions** tab.
4. Click **Add Subscription**. The **Edit Subscription** dialog box opens.
5. Give your subscription a name in the **Name** field.
6. To modify the subscription parameters, click **Edit Parameters**. The **Edit Parameter** dialog box opens. Change the **Value** and click **OK**.
7. Select a schedule from the **Schedule** list. If the schedule you want does not exist, you need to create it.
8. Click **Provide for dashboard and external access** to make the report available in a dashboard panel.
9. Click **OK**. The new subscription is listed in the **Subscriptions** list.
10. In the menu, click **Home** > **My Dashboard**.
11. Click **Add Panel** on the top left. The **Add Panel** dialog box appears, listing the available panels along with a short description for each panel.
12. Select **Report Subscription**. The **Configure Panel** dialog box appears, listing all available report subscriptions.
13. Select a report subscription from the list and click **OK**. The panel is added to your **Dashboard**.

Working with Charts

Displaying Charts

To display a chart:

1. In the menu, click **Reports** > **Details View**.
2. Select a report in the **Reports** tree.
3. Click the **Chart** tab to display the default chart.
4. To select a different chart type, click . The **Select Chart Type** dialog appears.
5. Select a chart type from the **Chart type** list.
6. Check the view properties that you want to apply to the chart:
   - 3D view
   - Show horizontal grid lines
   - Show vertical grid lines
   - Show legend
7. Specify how these chart options are to be saved:
   - Click the **For current user only** option to have these chart settings override the report's standard settings whenever the current user views this chart.
   - Click the **As report standard** option to have these chart settings presented to all users who do not have overriding user settings defined. This setting does not effect individual user settings.
8. Click **OK** to display the new chart type.

Note: The chart configurations you define here become the default for this report. When standard charts and graphs are not able to deliver the specific data that you require, or when they cannot display data in a required format, you can customize the appearance of queried data using the Silk Central reporting functionality. To open the current chart in a separate browser window, click at the top of the **Chart** page.

Printing Charts

To print the current chart:

1. In the menu, click **Reports** > **Details View**.
2. Select a report in the **Reports** tree.
3. Click the **Chart** tab.
4. Click **Print**. The chart data displays in a new window in printable format. Your system's print dialog box is also displayed.
5. Configure print settings as necessary and click **OK** to print the chart.

Removing Charts

Removing a chart only removes the currently selected chart template from the selected report, it does not remove the chart template entirely.

To remove the current chart template from the selected report:

1. In the menu, click **Reports** > **Details View**.
2. Select a report in the **Reports** tree.
3. Click the **Chart** tab.
4. Click **Remove chart type**. The **Remove Chart** dialog box opens.
5. Select one of the following:

- Select **Remove user settings (and revert to report standard)** to have the current user's chart settings deleted along with the chart. The chart will subsequently be displayed according to the report's standard settings. If no standard settings have been defined, the chart cannot be displayed.

  Note: This option is only available when the current user has defined specific chart settings.

- Select **Remove standard chart settings** of report to have any standard settings deleted along with the chart. User-specific settings are not affected by this option.

  Note: This option is only available when standard chart settings have been defined for a report.

6. Click **OK** to delete the chart template. If required, you can click the **<Click here to choose a chart type>** link to assign a new chart template to the selected report.

Report Chart Page

Reports > **Details View** > **Chart**

The **Chart** page enables you to define charts and graphs for data analysis. The page relies on the internal reporting engine of Silk Central to create standard charts and graphs from the data retrieved by the selected report query.

The following standard chart types are available:

- area chart
- bar chart
- horizontal stacked bar chart
- line chart
- pie chart
- stacked bar chart

Customizing Reports

Customizing BIRT Report Templates

With BIRT RCP Designer (BIRT), you can customize the pre-installed report templates of Silk Central and create custom report templates. For details on using BIRT, see the *Administration* topics in this Help and the BIRT RCP Designer documentation.

To download an existing template for editing:

1. In the menu, click **Reports** > **Details View**.
2. Select a report that utilizes the BIRT Report Template.
3. Click the **Properties** tab.
4. Click **Download BIRT report template**. You receive the report data as an empty generic BIRT report template. The datasource is already configured.
5. Once you have saved the template to your local system, modify it as required.

   For detailed information on configuring BIRT report templates, see the *Administration* topics in this Help.
6. To upload the modified report template, click **Administration** > **Report Templates** in the menu and click **Upload**.

Customizing the Word Report Template

Use the Word report template to create a custom report that suits your needs.

To download an existing template for editing:

1. In the menu, click **Reports** > **Details View**.
2. Select a report.
3. Click the **Properties** tab.
4. Click the **Download sample Word report template** link. Use your browser to save the file locally.
5. Using the available result columns in your report, customize the report to your liking according to the commands contained in *Word Report Template*.
6. To upload the modified report template, click **Administration** > **Report Templates** in the menu and click **Upload**.

Word Report Template

About the template

Use the Word report template to create a customized report. The template uses Word merge fields to get the data that you need. The template is designed for `.DOCX` files and does not support `.DOC`. Here a few tips to get started:

- To insert merge fields in a document, click **Office 2010** > **Insert** > **Quick Parts** > **Fields** > **MergeField** or click **Ctrl** plus **F9**.
- In order to edit a merge field, right click the field and then select **Edit Field**.
- You can mix and match standard text in addition to merge fields in your report.
- Merge fields take the following form: `« value »`.

General Report Information

The following contains data you may want to use in your report header:

Field	Description
${report.name}	The name of the report.
${report.projectName}	The name of the project where the report is executed.
${report.description}	The description of the report.
${report.executedBy}	The login name of the user who executed the report.
${report.generatedOn}	The date and time when the report was executed.
${report.generatedOnWeek}	The week number of when the report was executed.

Accessing Data

The following sections describe how to access and display different data for your report.

By Index `«${rows[0].cols[3]}»`

By Name `«${rows[0].ReqName}»`

In Lists A typical use case would be to iterate through each row and show the column information for every row. To get a list of data, do the following:

```
«[#list rows as r]»
«${r.TestDefID}» - «${r.TestName}»
«[/#list]»
```

The beginning of the loop is defined by `[#list rows as r]` and the end by `[/#list]`. The row data within the loop is referenced with `r` which allows you to get `Test Name` within the loop by referencing it with `${r.TestName}`.

The above example would iterate through all rows and the rendered report would show a list of tests with their id and their name.

In Tables

Defining the start and end of a loop within a table row requires an additional command to continue iterating within the table. You have to place the `list` command for the loop into the first column of your table and preface it with `@before-row`. You need to use `@after-row` to complete the list. The following table shows how to do this.

«${headers[3]}»\|«${headers[3].@name}»	«${headers[4]}»\|«${headers[4].@index}»
«@before-row[#list rows as r]»«${r.ReqName}» «@after-row[/#list]»	«${r.ReqDescription.@html}»

Headers and HTML

- Headers of the data can be accessed with a merge field named `headers`.
- Headers can be displayed in different ways by appending `.@elementName` or `.@name` or `.@index`.
- Some Silk Central data, like many **Description** fields, are stored as HTML. If you want to display your HTML-encoded text based on its tags, append the attribute `.@html`. If you don't add this attribute, you will still see the text, but it will contain the HTML markup. For example: if your source data is `<b>My report description</b>` and you use `.@html`, you will see **My report description**. Otherwise, you will see: My report description. The following HTML tags are supported: `<b>, <strong>, <i>, <u>, <br>, <p>, and <a>`.

Troubleshooting

Why does my report show wrong data?	Are you referencing columns by their index? If yes, be aware that the first column is referenced by index 0 and not by 1.
Why do I get an error mentioning a specific field when downloading my report? I don't see this field in my template?	You may have changed the label of a field but the mail merge reference still has its original value. For example, you may receive an error message that the field `${r.requirementName}` doesn't exist. In your document you see the field `${r.reqName}`. When you right click this field and select **Edit Field**, you will see that the reference is still `${r.requirementName}`. Don't forget to change mail merge fields via **Edit field**.

Sample Report

The following sample Word report shows a report with manual tests containing steps.

Note: You cannot copy and paste this sample as is. It is designed to show you different ways to use reporting code for the various sections in a report. The sample shown below is included in the **Report Templates** as `ManualTestResults.docx`.

```
Report generated: «${report.generatedOn}» «${report.generatedOnWeek}»
«${report.name}»

Project Name          «${report.projectName}»
Report Description    «${report.description}»
Report Executed By    «${report.executedBy}»

«[#list rows as r]»«[#assign firstRow=(r_index==0 ||
rows[r_index-1].ManualTestDefID != r.ManualTestDefID)]»«[#if firstRow]»

«${r.TestDefinitionName}»
«${r.TestDefinitionDescription.@html}»
```

```
Status: «${r.StatusName}»

Planned Time [hh:mm]: «[#if r.PlannedTime!="null"]»«${r.PlannedTime}»«[#else]»
00:00«[/#if]»
Used Time [hh:mm]: «[#if r.UsedTime!="null"]»«${r.UsedTime}»«[#else]»00:00«[/
#if]»
Build: «${r.BuildName}»
Version: «${r.VersionName}»
Execution Plan: «${r.ExecDefName}»
Changed By: «${r.ChangedBy.@text}»
Changed On: «${r.ChangedAt.@text}»

«[/#if]»«[#if r.StepName != "null"]»«[#if firstRow]» Test Step Details:«[/
#if]»
Step Name: «${r.StepName}»
Description: «${r.StepDescr.@html}»
Status: «${r.StepStatus}»
Result Info: «${r.StepResultInfo.@html}»
Expected Result: «${r.ExpectedResult.@html}»
«[/#if]»«[/#list]»
```

Viewing Reports

Because each template expects a certain data format to produce a useful graph, not all templates can be applied to all report queries. You will receive an error message if you attempt to generate a report through an incompatible report template. For example, selecting the *Four Values Per Row As Horizontal Bar* template to display the *Requirements Status Overview* report works because this particular Microsoft Excel template requires exactly the four values, `failed`, `passed`, `not executed`, and `not covered` that the report query delivers.

To generate a report:

1. In the menu, click **Reports** > **Details View**.
2. In the **Reports** tree, select the report that you want to generate.
3. Click the **Report** tab.
4. Click the link **<Click here to choose a report template>**. The **Select Report Template** dialog box displays.
5. Select the template you wish to use.
6. Click **OK** to display the report.

Saving Reports

How you save a report locally depends on whether you have selected a BIRT report template or an Excel or Word template. If you have selected an Excel template, click the **Download Excel report template** link in the **Properties** page of the selected report. This will invoke Microsoft Excel on your local computer and the report will be loaded automatically. Likewise, with Word, click **Download sample Word report template**.

If you have selected a BIRT report template, use the following procedure to save the report.

To export the current BIRT report as PDF:

1. In the menu, click **Reports** > **Details View**.
2. In the **Reports** tree, select the report that you want to save.
3. Click the **Report** tab.
4. Click on the **Report view** toolbar.
5. On the **File Download** dialog box, click **Save** to save the PDF document to a location of your choice.

Bookmarking Reports

The **BOOKMARK** button bookmarks the currently displayed report, including the parameters that you have set in the **Parameters** page. You can send bookmark URLs to other Silk Central users, allowing them to view reports with a single click.

The bookmark URL contains the parameters, prefixed with `rp_`. Date values are represented as the correlating `Long` values in UTC in the URL.

Viewing a Report as a PDF

To view the current report in PDF format within the report browser frame:

1. In the menu, click **Reports** > **Details View**.
2. In the **Reports** tree, select the report that you want to view.
3. Click the **Report** tab.
4. Click on the report view toolbar. The report displays in PDF format.

Accessing Most Recently Used (MRU) Reports

To select a recently-viewed report:

1. In the menu, click **Reports** > **Details View**.
2. On the **Reports** toolbar, expand the **Last Used Reports** list box.
3. Select the report that you want to view.

Reports Toolbar Functions

Silk Central > **Reports**

The **Reports** toolbar provides important commands for report management. The toolbar includes the following items:

Item	Icon	Description
New Child Folder		Enables creation of new report folders. Click **New Child Folder** to define a name and optional description for a new folder. The new folder displays as a child of the currently selected node in the **Reports** tree.
New Child Report		Enables creation of new reports. Click **New Child Report** to define a new report using the **Create New Report** dialog box. A new report displays as a child of the currently selected node in the **Reports** tree.
Edit		Edit a report.
Delete		Delete a report.
Cut		Cut a report and add it to the clipboard.
Copy		Copy a report to the clipboard.
Paste		Paste a report from the clipboard into the **Reports** tree.
Paste as Child		Paste a report from the clipboard into the **Reports** tree, as a subnode of the selected node.

Item	Icon	Description
Move Up		Move reports up within the **Reports** tree.
Move Down		Move reports down within the **Reports** tree.
Last Used Reports		Lists the Most Recently Used (MRU) reports by date/time in descending order. Select a report name from the list to advance to that report. Each time a report is accessed by clicking the **Data**, **Chart**, or **Report** tab, that report is added to the top of the list box. Accessing a report's **Properties** or **Parameters** tab does not result in that report being added to the **Last Used Reports** list box. The **Last Used Reports** list box is empty for new users and users who have not yet generated a report. The number of reports that displays in this list can be configured by your administrator. For more information, see the *Administration* topics in this Help.

Report Properties

Editing Report Properties

To edit the properties of a report:

1. In the menu, click **Reports** > **Details View**.
2. Select a report in the **Reports** tree.
3. Click the **Properties** tab.
4. Click **Edit**. The **Edit Report** dialog box appears.
5. Modify the **Name**, the **Description** and the **Timeout [s]** of the report as required.
6. Check the **Share this report with other users** check box if you want to make this report available to other users.
7. From the **Default tab** list, select the tab that you want to be directed to when you select this report from one of the context-sensitive report lists.
8. You can edit the report in two ways:
   - Create a simple report: Use the **Selection criteria**, **Property**, **Operator**, and **Value** lists to generate SQL queries. Click **More** to add further query strings and choose the operators **AND** or **OR** to combine the queries. Click to delete a query string.
   - Create an advanced report: If you are familiar with SQL, you may want to edit the query code. Click **Advanced Query** and modify the query code within the **Report data query** field. The **Insert placeholder** list assists you in editing the SQL queries with pre-defined function placeholders. Click **Simple** to go back to the simple mode.

   Note: If you manually edit the SQL code for the query, upon finishing, click **Check SQL** to confirm your work.
9. Click **Finish** to save your changes.

Report Properties Page

Reports > **Details View** > **Properties**

The **Properties** page displays the basic properties of the selected report, enabling you to edit these properties or the report templates. You can also add subreports to your reports.

The page displays the following items:

Items	Description
Report Name	Name of the report (customizable)
Report ID	System-defined identifier of the report
Description	A description of the report (customizable)
Created On	Date the report was created. Default reports are created when a database is created and connected to.
Created By	User who created the report. Default reports are created by the user Admin.
Changed On	Date the report was last modified.
Changed By	User who last modified the report.
Renderer	Report template that is currently assigned to the report.
Default Tab	Tab you are directed to when you select this report from one of the context-sensitive report lists.
Edit	Click to open the **Edit Report** dialog box.
Add Subreport	Click to add a subreport to the report.
Report Templates	The available pre-installed report templates are: **Generate empty BIRT report template** You receive the report data as an empty generic BIRT repo **Generate Excel report template** You receive an Excel file with a sheet named DATA that co the only affected sheet in the template, so you can specify i diagrams. **Download sample Word report template** You receive a Word .DOCX file that you can use to create a examples of how to customize the template to add the data **Download report data as .CSV file** You receive the report data as a Comma Separated Values will receive ‘,’ or ‘;’ as the delimiter character. The date is al **Download report data as .XML file** You receive the report data as XML. The advantage of this data. Accessing data outside of Silk Central - You can call a following format: `http://server/servicesExchan hid=reportData&userName=<username>&pass of the report>&type=<csv|xml>`.

Report Parameters

Editing Report Parameters

To edit the parameters of a report:

1. In the menu, click **Reports** > **Details View**.
2. Select a report in the **Reports** tree.
3. Click the **Parameters** tab. If the report has parameters defined for it, the parameters are listed here.
4. Click **Edit Parameters**. The **Edit Parameters** dialog box appears.
5. Edit the **Label** or **Value** of the listed parameters as required.
6. From the **Usage** list, select the usage type of the parameter:
   - Constant Value
   - Start Time
   - End Time
7. Click **OK**.

Report Parameters Page

Reports > **Details View** > **Parameters**

The **Parameters** page lists customizable statement elements. Parameters can be defined any time before a report execution by simply changing them on the **Parameters** page. The syntax of a parameter is: `${parametername|defaultvalue|guiname}`. The `defaultvalue` and the `guiname` are optional. Parameter-names cannot contain whitespace characters.

When a report has parameters associated with it, it is possible to edit the values of the parameters before each report execution. Parameter values are stored in the current user context, which means edited values are available only to the user who performs the edits. When parameter values are not specified for a given report execution, the default values from the report definition are used.

Using the **Usage** list box, you can select the usage type of a parameter. The possible values are `constant value`, `start time`, and `end time`. `start time` and `end time` are used for reports that query for a specific date range.

When a report has subreports assigned to it, the parameters of those subreports are also shown in the **Parameters** page and the values are stored only within the context of the selected report. For example, the values are only used in conjunction with the current subreport configuration. When creating new reports, parameters are the values that are defined on the **Create New Report** dialog box in the **Selection criteria** area.

Report Data Page

Reports > **Details View** > **Data**

The **Data** page serves as a read-only result preview that shows the results of the selected report a dynamic grid with sorting and filtering capabilities. The visible data can be exported to Excel with the **Download Data (.xlsx)** button.

You can access the requirements, tests, execution plans, and Issue Manager issues that you query for directly from the results list in the **Data** page. To do so, your query must include the column `ProjectID` and the respective ID of the element that you want to link to.

ID	Description
RequID	Query for this column to enable a link to requirements on the **Data** page of a report.
TestDefID	Query for this column to enable a link to tests on the **Data** page of a report.
ExecDefID	Query for this column to enable a link to execution plans on the **Data** page of a report.
DefectID	Query for this column to enable a link to Issue Manager issues on the **Data** page of a report.

If the query's result includes both the `ProjectID` and either of `RequID`, `TestDefID`, `ExecDefID`, or `DefectID` using exactly these terms as column names, the **Data** page will display the values in the element ID's column as a link.

Report Page

Reports > **Details View** > **Report**

The **Report** page is used to display data as a formatted report. If you have not yet assigned a template for your report, you can select one in the **Report** page.

A list box provides a selection of all available report templates. In addition to many system-installed templates, any custom report templates that were uploaded from **Administration** > **Report Templates** are also available here.

You can also download an existing template by clicking the **Properties** tab, and then clicking the download link that corresponds to the report format you are working with. From there you can customize the template to your needs.

Note: Reports are cached to improve the performance of reporting. Click **Update** to update the report data immediately.

Project Overview Report

Reports > **Project Overview Report**

Displays the **Project Overview Report**, which offers a high-level overview of the status of the selected project. The **Project Overview Report** includes the following sections:

Section	Description
General Report Information	General information like the name of the current project, the report description, and the planned release date.
Requirements	Test coverage status for requirements. Shows the percentage of test coverage in tabular and graph format both all requirements and requirements with high priority.
Tests	Test-type distribution and test-execution results in chart and tabular form for tests.
Issues	The amount of found, fixed, deferred, and currently open in the backlog issues, that are linked to tests, in tabular and graph format.

Code Analysis

The goal of conventional code coverage is to deliver information about what code is covered by tests. This approach is typically used to gain code-coverage information for unit tests. The code-analysis functionality in Silk Central goes well beyond this, delivering data for unit, functional, and load tests, both automated and manual, in managed environments. Code coverage measurements are utilized to track test progress and guide test planning. This innovative approach in Silk Central to code coverage draws on the relationship between specific tests and the code they test. This approach enables you to perform impact/dependency analysis of code changes from the testing perspective. It also assists you in optimizing your testing, by helping you identify the test runs that are most relevant to a specific code change.

The **Code Analysis** unit offers code-coverage data for AUT (Applications Under Test), packages/namespaces, classes, methods, and statements, enabling you to perform test-impact analysis, which

determines the tests that should be run in response to specific code changes, and effort analysis, which determines how many hours of automated testing and manual testing are required to adequately cover specific code changes. Each of these code-analysis tasks can be addressed by running pre-configured reports. The unit features a navigation tree that lists all products that have been created for the selected project. You can drill down into products to select specific versions, and at the deepest level, specific builds.

Enabling Code Analysis

You must configure Silk Central to gather code coverage data from an application under test. You can configure any number of execution plans listed in **Executions** > **Details View** > **Deployment**.

Tip: Make sure that only code coverage-enabled tests access your application under test and that no parallel tests are executed. This ensures that the code coverage data is correct and that it can be assigned to a specific test later.

Java Code Analysis Options

To use Java Code Analysis for an AUT, you have to run the JVM of the AUT with a Java Agent. The Java Runtime Environment (JRE) version 5 or higher is required. You can use the following options for all supported Java versions:

Option	Description
port=19129	*Optional:* Port of code coverage service. When no port is specified the port 19129 is used
coveragepath=[path1], [path2], ...	Pathes to the .jar files that are covered by the agent. If parts of a path contain whitespaces have to use quotes. For example: `coveragepath="C:\Program Files\YourApplic` If a folder is specified, the agent recursively looks for all .class files in this folder. If a folde trailing wildcard is specified, the agent looks for .jar files in this folder. Running the agent v specifying a coveragepath is not valid. `java -javaagent:agent.jar=coveragepath="C:Program Files\YourApplic Aut.jar`
includes=[package1]: [package2]: [package3]: ...	*Optional:* Only packages that match these packages are considered for coverage. Wildcar allowed for specifying the included packages. `java -javaagent:agent.jar=includes=com.borland.* AUT.jar`
excludes=[package1]: [package2]: [package3]: ...	*Optional:* Packages that are specified in the excludes option are ignored for code coverag Wildcards (*) are allowed for specifying the excluded packages. `java -javaagent:agent.jar=includes=com.borland.*;excludes=com.borland.in AUT.jar`

Note: When both inclusions and exclusions are specified in the filters, the exclusion evaluated first. If a class is both included and excluded through filters, this class will excluded and no coverage data is generated for this class. If the filter option is not s coverage data is generated for all used classes, unless the coverage path option is which case coverage data is generated for all classes in the coverage path.

Java Code Analysis Example

Example for Windows:

```
"<java_home_directory>\bin\java" -
javaagent:agent.jar=port=19129;
coveragepath=C:\dev\deploy\lib\library1.jar,C:\dev\deploy\lib
\library2.jar;
includes=com.borland.*;excludes=com.borland.internal.*
com.borland.MyApplication
```

Example for Linux (including quotation marks):

```
"<java_home_directory>/bin/java" -
javaagent:agent.jar="port=19129;
coveragepath=/tmp/dev/deploy/lib/library1.jar,/tmp/dev/
deploy/lib/library2.jar;
includes=com.borland.*;excludes=com.borland.internal.*"
com.borland.MyApplication
```

.NET Code Analysis

Note: Silk Central does not support .NET code analysis for Windows 8 or Windows Server 2012.

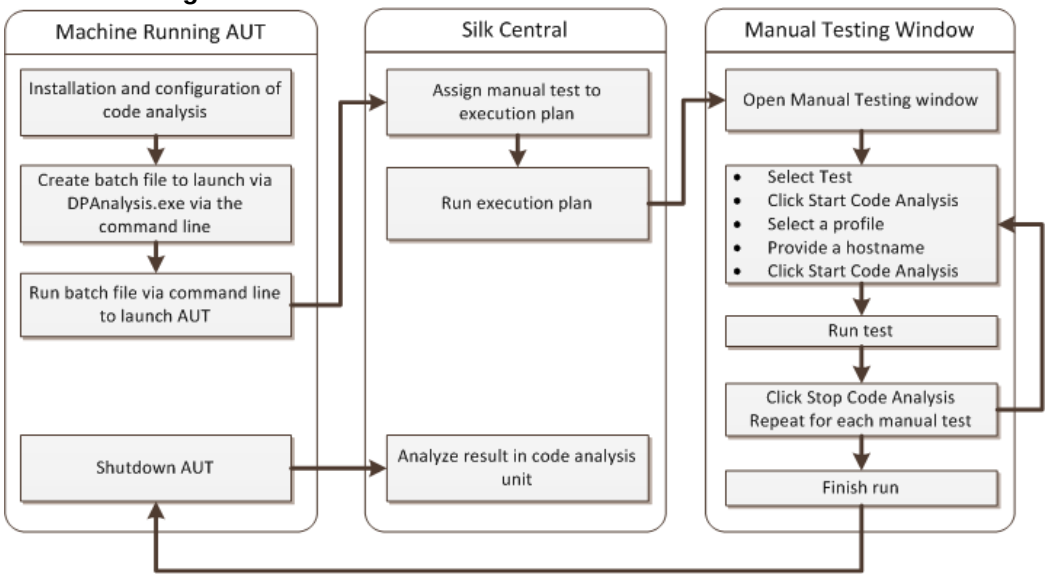
.NET Code Analysis and Manual Testing

The following sections detail the required steps to install and use the DevPartner .NET code coverage components shipped with Silk Central. The example below will get you started by using manual testing and a single AUT. If you plan to use automated testing, first read and understand the steps below, and then see the topic titled *.NET Code Analysis and Automated Testing* .

Note: In order to use the Silk Central/.NET code coverage functionality, the Silk Central - DevPartner components must be used. The Silk Central-DevPartner components cannot be installed on machines that have DevPartner 10.1 or below previously installed. Silk Central does not support .NET code analysis for Windows 8 or Windows Server 2012.

Note: .NET code analysis requires the PDB files generated at compile time of the .NET application under test (AUT) to be located in the same directory as the AUT's executable(s). If the PDBs for the AUT are not available, it is not possible to leverage the .NET code analysis functionality.

Manual Testing Workflow


Machine Running AUT
Installation and configuration of code analysis
Create batch file to launch via DPAnalysis.exe via the command line
Run batch file via command line to launch AUT
Shutdown AUT
Silk Central
Assign manual test to execution plan
Run execution plan
Analyze result in code analysis unit
Manual Testing Window
Open Manual Testing window
Select Test
Click Start Code Analysis
Select a profile
Provide a hostname
Click Start Code Analysis
Run test
Click Stop Code Analysis
Repeat for each manual test
Finish run

Installing the Windows Code Analysis Framework and DevPartner Analytics

1. Go to the machine that hosts the application to test.
2. Open Silk Central.
3. Go to **Help** > **Tools** and click `Windows Code Analysis Framework`. This will prompt a download of `CAFramework.exe`. `CAFramework.exe` includes the installation for the `Code Analysis Framework` and the `DevPartner Analytics` package.

Note: Multiple execution servers running tests against the same Code Analysis Framework at the same time is not supported.

4. Double click the download file to start the installation. Walk-through the installation of the `Windows Code Analysis Framework`. At the end of the installation, you will be prompted to install `DevPartner Analytics`. Ensure that the **DevPartner Analytics Installation** check box is checked on the appropriate installation screen and install this component. At the end of this installation, all required files are installed and the proper service is started. The name of the service is `Silk Central Code Analysis Service`.

Configuring DPAnalysis to launch Your AUT

1. Create a `.BAT` file that points to `DPAnalysis.exe`. An example would be:

```
"C:\Program Files\Micro Focus\DevPartner\Analysis\dpanalysis.exe" /cov /
USE_AUTOMATION_INTERFACE
/W "C:\Common\Development\MYAPP"
/P "C:\Common\Development\MYAPP\MyApp.exe"
```

2. For readability, the example above is on multiple lines. Your `.BAT` file should be on one line. Make the following modifications:
   a) Ensure that the first line is your installation path to `dpanalysis.exe`. The two switches are mandatory.
   b) The second line contains a mandatory switch and needs to include the path to your executable and PDBs.
   c) The third line contains a mandatory switch and needs to include the absolute path to your test application and the application name.
3. Double-click the `.BAT` file to have DPAnalysis launch your application.

For more information on running `DPAnalysis.exe`, see the topic titled *Using DpAnalysis.exe*. That topic and related topics contain information on additional switches and how to use a configuration file if you have multiple applications to test.

Configuring Silk Central for Code Analysis

1. In the menu, click **Execution Planning** > **Details View**.
2. Open an existing execution plan that contains a manual test with steps to test functionality for your AUT.
3. Click the **Deployment** tab.
4. Under **Code Analysis Settings**, click **Edit** to view the **Edit Code Analysis Settings** dialog box.
5. Ensure that **Enable Code Analysis** is checked.
6. Select `DevPartner .NET Code Analysis` from the **Code Analysis Profile** list.
7. For the `Hostnames` field, type in the host name followed by colon and the port number. For example: `localhost:19129`.

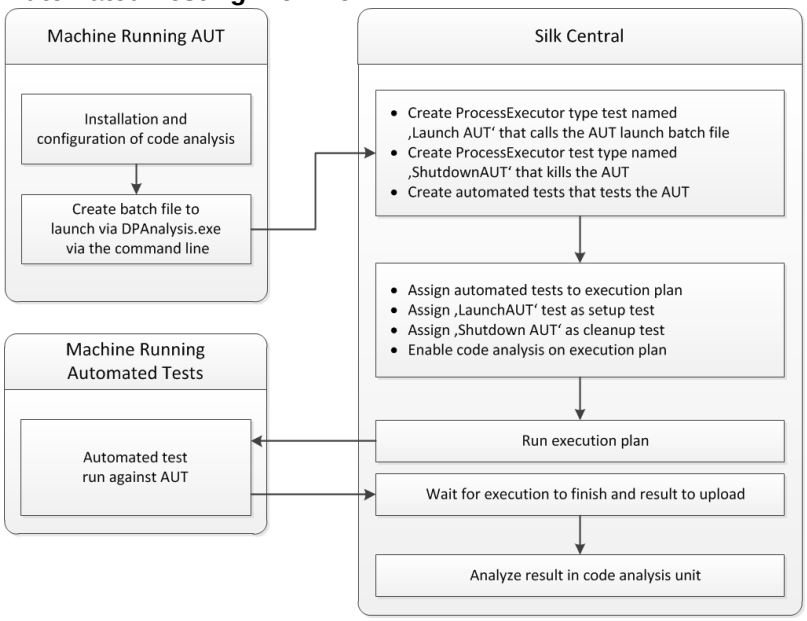
   The default code analysis framework port is `19129`. You can configure the code analysis framework to run at a given port using the following xml file: `<install dir>\Code Analysis \CodeAnalysisConfig.xml`
8. Click **OK**.
9. Run the test by clicking **Run** in the **Execution** area.
10. On the **Run** dialog box, ensure that **All Tests** is checked.
11. In the **Set build for execution plan**, select the proper build for your execution plan.
12. Click **OK**.

.NET Code Analysis and Automated Testing

This section describes two scenarios that you may encounter when executing your tests that use code coverage. It also provides proper ways to structure your tests within an execution plan.

The examples used in the following topics are specific to DevPartner Code Analysis, but the structure is similar for other code analysis tools. For example, you will have different startup/cleanup parameters in your execution plan.

Automated Testing Workflow


Machine Running AUT
Installation and configuration of code analysis
Create batch file to launch via DPAnalysis.exe via the command line
Machine Running Automated Tests
Automated test run against AUT
Silk Central
Create ProcessExecutor type test named ‚Launch AUT' that calls the AUT launch batch file
Create ProcessExecutor test type named ‚ShutdownAUT' that kills the AUT
Create automated tests that tests the AUT
Assign automated tests to execution plan
Assign ‚LaunchAUT' test as setup test
Assign ‚Shutdown AUT' as cleanup test
Enable code analysis on execution plan
Run execution plan
Wait for execution to finish and result to upload
Analyze result in code analysis unit

Configuring One or More Tests with One AUT

If you have the scenario where you have one or more tests in a single execution plan and they test against a single application under test, you should structure your testing as follows:

1. Create a `ProcessExecutor` test that will start your code analysis application.

   The `ProcessExecutor` **Argument List** should start your code analysis program. For example: `start cmd /c start cmd /c D:\sctm\dps\startDPS_Simple1.bat`, where `startDPS_Simple1.bat` contains:

   ```
   "C:\Program Files\Micro Focus\DevPartner\Analysis\dpanalysis.exe"
   /cov
   /USE_AUTOMATION_INTERFACE
   /O "D:\SCTM\temp"
   /W "D:\SCTM\DPS\TESTAPP\SCTMCodeAnalysisTestApp\bin\Debug"
   /P "D:\SCTM\DPS\TESTAPP\SCTMCodeAnalysisTestApp\bin\Debug
   \SCTMCodeAnalysisTestApp.exe"
   ```
2. Create an execution plan.
3. Click **Executions** > **Details View**, select an execution plan and click the **Setup/Cleanup** tab.
4. Add the previously created test as the **Setup Test**.
5. Add a test to the execution plan that automates your application under test with an automated testing tool.
6. *Optional:* Add another test to the execution plan that automates your application under test with an automated testing tool.
7. Create a `ProcessExecutor` test.
8. Click **Executions** > **Details View**, select an execution plan and click the **Setup/Cleanup** tab.

9. Add the previously created test as the **Cleanup Test**.

The `ProcessExecutor` **Argument List** should close your program: `start cmd /c taskkill /IM SCTMCodeAnalysisTestApp.exe`.

Configuring One or More Tests with Multiple AUTs

If you have the scenario where you have one or more tests in a single execution plan and they test against multiple AUTs, you should structure your testing as follows:

1. Create a `ProcessExecutor` test that will start your code analysis application.

   The `ProcessExecutor` **Argument List** should start your code analysis program. For example: `start cmd /c start cmd /c D:\sctm\dps\two_app_dps.cmd`, where `two_app_dps.cmd` contains:

   ```
   "C:\Program Files\Micro Focus\DevPartner\Analysis\dpanalysis.exe"
   /config D:\SCTM\DPS\configuration_file.xml
   ```

   and `configuration_file.xml` contains:

   ```
   <?xml version="1.0" ?>
   <ProductConfiguration>
       <RuntimeAnalysis Type="Coverage" MaximumSessionDuration="1000"
   NoUIMsg="true" />
       <Targets RunInParallel="true">
           <Process CollectData="true" Spawn="true" NoWaitForCompletion="true"
   NM_USE_AUTOMATION_INTERFACE="1" >
               <AnalysisOptions NM_USE_AUTOMATION_INTERFACE="1" NO_MACH5="1"
   NM_METHOD_GRANULARITY="1" SESSION_DIR="c:\temp" />
               <Path>D:\SCTM\DPS\SCTMCodeAnalysisTestApp
   \SCTMCodeAnalysisTestApp\
            SCTMCodeAnalysisTestApp\bin\Debug\SCTMCodeAnalysisTestApp.exe</
   Path>
               <Arguments></Arguments>
               <WorkingDirectory>D:\SCTM\DPS\SCTMCodeAnalysisTestApp
   \SCTMCodeAnalysisTestApp\
           SCTMCodeAnalysisTestApp\bin\Debug</WorkingDirectory>
           </Process>
           <Process CollectData="true" Spawn="true" NoWaitForCompletion="true"
   >
               <AnalysisOptions NM_USE_AUTOMATION_INTERFACE="1" NO_MACH5="1"
   NM_METHOD_GRANULARITY="1" SESSION_DIR="c:\temp" />
               <Path>D:\SourceCode\SVNQAD\Development\Development\SOURCECODE\
            QADSCTMMigration\bin\QADSCTMMigration.exe</Path>
               <Arguments></Arguments>
               <WorkingDirectory>D:\SourceCode\SVNQAD\Development\Development\
            SOURCECODE\QADSCTMMigration\bin</WorkingDirectory>
           </Process>
       </Targets>
   </ProductConfiguration>
   ```

2. Create an execution plan.
3. Click **Executions** > **Details View**, select an execution plan and click the **Setup/Cleanup** tab.
4. Add the previously created test as the **Setup Test**.
5. Add a test to the execution plan that automates your first application under test with an automated testing tool.
6. Add another test to the execution plan that automates your second application under test with an automated testing tool.
7. Create a `ProcessExecutor` test.
8. Click **Executions** > **Details View**, select an execution plan and click the **Setup/Cleanup** tab.
9. Add the previously created test as the **Cleanup Test**.

The `ProcessExecutor` **Argument List** should close your programs: `start cmd /c taskkill /IM application1.exe /IM Application2.exe`.

Using DPAnalysis.exe

`DPAnalysis.exe` is the DevPartner code coverage application that allows you to profile .NET applications. The application is started using the command line.

You can use the application with traditional switches as documented in these topics, or you can add an additional switch that points to a configuration file. You may want to use a configuration file if you have an exceptionally long command line string or you want to run multiple applications in a single session.

The `/USE_AUTOMATION_INTERFACE` switch is mandatory. It causes the automation interface environment needed for the interaction with the framework to be established. It also causes license checking to be bypassed. This switch does not take any parameters.

Running DPAnalysis.exe from the Command Line

The DevPartner Studio Code Coverage installation includes `DPAnalysis.exe`, a command line executable that is installed in the `\Program Files\Micro Focus\DevPartner Studio\Analysis\` directory.

Use the following syntax and switches to run the DevPartner Studio Code Coverage tool from the command line:

```
DPAnalysis  [/Cov] [/USE_AUTOMATION_INTERFACE] [/E|/D|/R]
[/W workingdirectory] [/PROJ_DIR] [/H hostmachine]
[/NOWAIT] [/NO_UI_MSG] [/N] [/F] [/A C:\temp1;C:\temp2]
[/NO_QUANTUM /NM_METHOD_GRANULARITY /EXCLUDE_SYSTEM_DLLS
/NM_ALLOW_INLINING /NO_OLEHOOKS /NM_TRACK_SYSTEM_OBJECTS]
{/P|/S} target [target arguments]
```

Example

You can use `DPAnalysis.exe` directly from the command line, using switches to direct the analysis session. For example, the following command line launches a code coverage session for the application *SCTMCodeAnalysisTestApp.exe*.

```
dpanalysis.exe /cov /USE_AUTOMATION_INTERFACE /W "D:\SCTM
\DPSCoverageIntegration\Test App\
SCTMCodeAnalysisTestApp\SCTMCodeAnalysisTestApp\bin\Debug" /P
"D:\SCTM\DPSCoverageIntegration\Test App\SCTMCodeAnalysisTestApp
\SCTMCodeAnalysisTestApp\bin
\Debug\SCTMCodeAnalysisTestApp.exe"
```

Switches

Analysis Type Switches

Name	Description
`/Cov[erage]`	Sets analysis type to DevPartner Coverage Analysis

Note: `DPAnalysis.exe` does not instrument unmanaged code. To collect performance or coverage analysis data for an unmanaged application, you must first instrument the application.

Data Collection Switches

Enables or disables data collection for a given target, but does not launch the target. Optional.

Name	Description
/E[nable]	Enables data collection for the specified process or service.
/D[isable]	Disables data collection for the specified process or service.
/R[epeat]	Profiling will occur any time you run the specified process until you use the /D switch to disable profiling.

Other Switches

These switches are optional.

Name	Description
/W[orkingDir]	Specify the working directory for the target process or service.
/PROJ_DIR	Specify directory of DevPartner Studio project, used to locate playlists, etc.
/N[ewconsole]	Run the process in its own command window. If you use DPAnalysis.exe to analyze a console application that requires keyboard input, you must use the /NewConsole switch to open a console window to accept the input.
/INCLUSION_FILTER <filterFile>	The /INCLUSION_FILTER switch is optional and allows an Inclusion Filter file to be specified. This file is used when the coverage data is provided to the framework in the Silk Central-specific XML format. It causes the report generation program to filter out all classes that are not specified in the filter file. This switch takes a single parameter as shown here. /INCLUSION_FILTER <filterFile> where <filterFile> is the fully-qualified path of the filter file to be used for the duration of the program. The sample Inclusion_Filter file below is a simple XML file that contains the set of classes to be included in the generated report. It also contains a value, <filterClasses>, which indicates whether the filter is to be applied. <?xml version="1.0" encoding="utf-8"?> <!--D:\Public\SCTM Work\ProdAPI_Tester_CSharp_LINES.dpcov--> <inclusionInfo> <filterClasses>false</filterClasses> <includedClass>MicroFocus.Products.Tools.TCS_TraceMechanism.CTCS_MsgStream</includedClass> <includedClass>MicroFocus.Products.Tools.TCS_TraceMechanism.CTCS_RecvTask</includedClass> <includedClass>MicroFocus.Products.Tools.TCS_TraceMechanism.CTCS_TimeStamp</includedClass> <includedClass>MicroFocus.Products.Tools.TCS_TraceMechanism.CTCS_Tracer</includedClass> <includedClass>MicroFocus.Products.Tools.TCS_TraceMechanism.CMsgRegisterClientReqMB</includedClass> </inclusionInfo>
/A[ssembly_dir]	For coverage analysis only. A list of paths that contain referenced DLL/PDB files. Use this switch to specify any referenced but not loaded DLL/PDB files to display in a coverage session file. Separate multiple paths with a semicolon (;).

Analysis Options

Example of the analysis options is:

```
<AnalysisOptions NM_USE_AUTOMATION_INTERFACE="1" NO_MACH5="1"
NM_METHOD_GRANULARITY="1" SESSION_DIR="c:\temp" />
```

Column	Type
/NM_USE_AUTOMATION_INTERFACE	A required switch in the analysis options section of the coniguration file. The value must equal "1".
/NO_QUANTUM	Disables excluding time spent on other threads.
/NM_ALLOW_INLINING	Enable run-time instrumentation of inline methods (Coverage and Performance only).
/NO_OLEHOOKS	Disable collection of COM.

Target Switch

Identifies target to follow as either a process or service. Required. Pick only one. All arguments that follow the target name or path will be arguments to the target.

Name	Description
/P[rocess]	Specify a target process (followed by arguments to process)
/S[ervice]	Specify a target service (followed by arguments to service)
/C[onfig]	Path to configuration file

DPAnalysis Configuration File

To manage analysis sessions with an XML configuration file, run `DPAnalysis.exe` from the command line with the `/config` switch and a properly structured XML configuration file as its target. For example:

```
dpanalysis.exe /config c:\temp\configuration_file.xml
```

By using a configuration file, you can profile and manage multiple processes or services. The ability to profile multiple processes can be especially useful for analyzing Web applications.

Sample Configuration File

```
<?xml version="1.0" ?>
<ProductConfiguration>
  <RuntimeAnalysis Type="Coverage" MaximumSessionDuration="1000"
NoUIMsg="true" />
     <Targets RunInParallel="true">
          <Process CollectData="true" Spawn="true" NoWaitForCompletion="true"
NM_USE_AUTOMATION_INTERFACE="1" >
               <AnalysisOptions NM_USE_AUTOMATION_INTERFACE="1" NO_MACH5="1"
NM_METHOD_GRANULARITY="1" SESSION_DIR="c:\temp" />
               <Path>D:\SCTM\DPS\SCTMCodeAnalysisTestApp
\SCTMCodeAnalysisTestApp\
        SCTMCodeAnalysisTestApp\bin\Debug\SCTMCodeAnalysisTestApp.exe</Path>
               <Arguments></Arguments>
               <WorkingDirectory>D:\SCTM\DPS\SCTMCodeAnalysisTestApp
\SCTMCodeAnalysisTestApp\
        SCTMCodeAnalysisTestApp\bin\Debug</WorkingDirectory>
          </Process>
          <Process CollectData="true" Spawn="true" NoWaitForCompletion="true"
>
               <AnalysisOptions NM_USE_AUTOMATION_INTERFACE="1" NO_MACH5="1"
NM_METHOD_GRANULARITY="1" SESSION_DIR="c:\temp" />
               <Path>D:\SourceCode\SVNQAD\Development\Development\SOURCECODE
```

```
\QADSCTMMigration\bin\QADSCTMMigration.exe</Path>
              <Arguments></Arguments>
              <WorkingDirectory>D:\SourceCode\SVNQAD\Development\Development
\SOURCECODE\QADSCTMMigration\bin</WorkingDirectory>
          </Process>
     </Targets>
</ProductConfiguration>
```

AnalysisOptions Element

Attributes that work with `AnalysisOptions` vary depending on the type of analysis session you run.

Note: DPAnalysis.exe ignores attributes mismatched with the type of analysis.

```
<AnalysisOptions
    SESSION_DIR = "c:\MyDir"
    SESSION_FILENAME = "myfile.dpcov"
    NM_METHOD_GRANULARITY = "1"
    EXCLUDE_SYSTEM_DLLS = "1"
    NM_ALLOW_INLINING = "1"
    NO_OLEHOOKS = "1"
    NM_TRACK_SYSTEM_OBJECTS = "1"
 NO_QUANTUM="1"
    NO_MACH5 = "1"
    FORCE_PROFILING = "1"
 ASSEMBLY_DIR = "C:\TEMP1;C:\TEMP2"
/>
```

SESSION_DIR

Optional. Use with Coverage, Memory, Performance, and Performance Expert. Specify a directory for saving the session file generated by the profiled target. Without this attribute, the resulting session file will be placed in the user's `My Documents` directory. If both `SESSION_DIR` and `SESSION_FILENAME` are absent, `DPAnalysis.exe` prompts you for the save location at the end of the session.

SESSION_FILENAME

Optional. Use with Coverage, Memory, Performance, and Performance Expert. Specify a session name for the session file generated for this target. Without this attribute, `DPAnalysis.exe` creates a unique name by combining the target's image name with a number (for example, `iexplore1.dpprf`). If you specify a name but no directory, the file will be placed in user's `My Documents` directory. If both `SESSION_FILENAME` and `SESSION_DIR` are absent, `DPAnalysis.exe` prompts you for the save location at the end of the session.

NM_METHOD_GRANULARITY

Optional. Use with Performance to set data collection granularity to method-level (line-level is default). Specify a value of `1` to set the attribute. Omitting the attribute disables it.

EXCLUDE_SYSTEM_DLLS

Optional. Use with Performance to exclude system images. Specify a value of `1` to set the attribute. Omitting the attribute disables it.

NM_ALLOW_INLINING

Optional. Use with Coverage and Performance to specify level of analysis detail. Enables run-time instrumentation of inline methods. Equivalent to the **Instrument Inline Functions** property. Specify a value of `1` to instrument inline functions. Omit the attribute to disable it.

NO_OLEHOOKS

Optional. Use with Performance analysis to activate tracking of system objects. Specify a value of `1` to set the attribute. Omitting the attribute disables it.

NM_TRACK_SYSTEM_OBJECTS

Optional. Use with Memory analysis to ignore system or third-party object allocations when tracking allocated objects. Specify a value of `1` to set the attribute. Omitting the attribute disables it. The default state (disabled) enables you to see memory allocations made when your application uses system or other non-profiled resources.

NO_QUANTUM

Optional. Use with Performance and Performance Expert analysis to exclude time spent in threads of other running applications. Specify a value of `1` to set the attribute. Omitting the attribute disables it.

FORCE_PROFILING

Optional. Use with Performance and Coverage analysis to force profiling of applications written without managed code or DevPartner Native C/C++ Instrumentation. Specify a value of `1` to set the attribute. Omitting the attribute disables it.

ASSEMBLY_DIR

Optional. Use with coverage analysis to specify the absolute path(s) containing referenced but not loaded assemblies to be shown in the Coverage session file. Separate multiple locations with a semicolon. Omitting the attribute disables it.

Element Information

Number of Occurrences	`0` or `1` per `Process` or `Service`.
Parent Elements	`Process`, `Service`
Contents	None

Remarks

Optional. Defines run time attributes for the specified target process or service. Attributes correspond to DevPartner Coverage, Memory, and Performance properties accessible from the Properties Window in Visual Studio.

Example

The following example shows a construction using AnalysisOptions within a Service.

```
<Service CollectData="true">
  <AnalysisOptions NM_METHOD_GRANULARITY="1" EXCLUDE_SYSTEM_DLLS="1"
NM_ALLOW_INLINING="1"
  NO_OLEHOOKS="1" ASSEMBLY_DIR="C:\TEMP">
</Service>
```

Arguments Element

Syntax

```
<Arguments>/arg1 /arg2 /arg3</Arguments>
```

Attributes

None

Element Information

Number of Occurrences	`0` or `1` per `Process` or `Service`.
Parent Elements	`Process`, `Service`
Contents	None

Remarks

Optional. No default if omitted. Arguments to be passed to the target process or service.

Example

The following example uses `Arguments` within a `Process` element.

```
<Process CollectData="true">
 <Arguments>/arg1 /agr2 /arg3</Arguments>
</Process>
```

ExcludeImages Element

Syntax

```
<ExcludeImages>
  <Image>ClassLibrary1.dll</Image>
  <Image>ClassLibrary2.dll</Image>
</ExcludeImages>
```

Attribues

None.

Element Information

Number of Occurrences	`0` or `1` per `Process` or `Service`.
Parent Elements	`Process`, `Service`
Contents	`Image`

Remarks

Optional. No default if omitted. Provide a list of at least one image (no maximum) which, if loaded by the target process or service, will not be profiled.

Example

The following example shows a construction using ExcludeImages within a Process element. Note the Image elements contained within ExcludeImages.

```
<Process CollectData="true">
 <ExcludeImages>
   <Image>ClassLibrary1.dll</Image>
   <Image>ClassLibrary2.dll</Image>
 </ExcludeImages>
</Process>
```

Host Element

Syntax

```
<Host>hostmachine</Host>
```

Attributes

None.

Element Information

Number of Occurrences	`0` or `1` per `Process` or `Service`.
Parent Elements	`Process`, `Service`.
Contents	Name of the host machine.

Remarks

Optional. No default if omitted. Sets the host machine of the target process or service.

Example

The following example shows a construction using `Host` within a `Service`. Note that the example includes the required `Name` element.

```
<Service CollectData="true">
  <Name>ServiceApp</Name>
  <Host>remotemachine</Host>
</Service>
```

Name Element

Syntax

```
<Name>MyServiceName</Name>
```

Attributes

None.

Element Information

Number of Occurrences	`1`.
Parent Elements	`Service`.
Contents	Service name.

Remarks

Required. The name of the service as registered with the service control manager. This is the same name you would use for the system's `NET START` command.

Example

The following example shows a construction using `Name` within a `Service`.

```
<Service CollectData="true">
 <Name>ServiceApp</Name>
</Service>
```

Path Element

Syntax

```
<Path> c:\MyDir\target.exe </Path>
```

Attributes

None.

Element Information

Number of Occurrences	1.
Parent Elements	`Process`.
Contents	Path to the executable.

Remarks

Required. Specify a fully qualified or relative path to the executable. You can specify the executable name without the path if the executable exists in the current directory.

Example

The following example shows a construction using Path within a Process element.

```
<Process CollectData="true">
  <Path>ClientApp.exe</Path>
</Process>
```

Process Element

Syntax

```
<Process CollectData="true or false"
   Spawn="true or false"
      NoWaitForCompletion="true or false"
      NewConsole="true or false"
   RepeatInjection="true or false"> ...
</Process>
```

Attributes

Profiling will occur any time you run the specified process until you use the /D switch to disable profiling.

CollectData	Optional. Specify **true** or **false**. Defaults to **true** if omitted. Specifies whether profiling will be enabled for the target process.
Spawn	Optional. Specify `true` or `false`. Defaults to `true` if omitted. Specifies if `DPAnalysis.exe` will spawn the specified target. Do not set to `true` for `aspnet_wp.exe` or `w3wp.exe`. DevPartner cannot spawn the `ASP.NET` worker process directly. Launch the `ASP.NET` worker process by opening the target Web page.
NoWaitForCompletion	Optional. Specify `true` or `false`. Defaults to **false** if omitted. The default is to wait until the process has completed. If set to `true`, causes `DPAnalysis.exe` to wait only until the target has started executing. `DPAnalysis.exe` will not wait for processes on remote machines (using the `Host` element). The

	MaximumSessionDuration attribute in the RuntimeAnalysis element overrides NoWaitForCompletion.
NewConsole	Optional. Specify true or false. Defaults to false if omitted. Causes DPAnalysis.exe to run the target in its own console window. The default is to use the same console that you typed the DPAnalysis.exe command line in. If you use DPAnalysis.exe to analyze a console application that requires keyboard input, you must use the /NewConsole switch to open a console window to accept the input.
RepeatInjection	Optional. Specify true or false. Defaults to false if omitted. Causes DPAnalysis.exe to profile the target in every time it runs until you explicitly specify false.

Element Information

Number of Occurrences	1 or more.
Parent Elements	Target.
Contents	AnalysisOptions, Path, Arguments, WorkingDirectory, ExcludeImages.

Remarks

Specifies a target executable.

Example

The following example shows a construction using Process and includes AnalysisOptions, Path, Arguments, and WorkingDirectory tags.

```
<Targets RunInParallel="true">
  <Process CollectData="true" Spawn="true" NoWaitForCompletion="true"
NewConsole="true">
    <AnalysisOptions NO_MACH5="1" NM_METHOD_GRANULARITY="1" SESSION_DIR="c:
\MyDir" />
    <Path>ClientApp.exe</Path>
    <Arguments>/arg1 /agr2 /arg3</Arguments>
    <WorkingDirectory>c:\temp</WorkingDirectory>
  </Process>
</Targets>
```

RuntimeAnalysis Element

Syntax

```
<RuntimeAnalysis Type="Coverage" NoUIMsg="false"
NM_INCLUSION_FILTER="Q:\AppDir\InclusionFilter.xml">
```

Attributes

Type	*Required:* Possible choices are: Performance; Coverage; Memory; or Expert. Specifies the analysis types for all targets listed.
MaximumSessionDuration	*Optional:* If omitted, no default used. If specified, DPAnalysis.exe will limit a session run for this amount of time. For example, if you specify MaximiumSessionDuration="60" and then begin profiling a service (with RestartAtEndOfRun="true" for the service), after 60 seconds, DPAnalysis.exe will stop the service and then restart the service.

NoUIMsg	*Optional:* If omitted, `false` is used by default. If set to `true` `DPAnalysis.exe` suppresses all UI error messages that may appear during the duration of the session. Setting this to `true` is useful when sessions are run unattended or when running a large number of consecutive tests.
NM_INCLUSION_FILTER	*Optional:* Allows an Inclusion Filter file to be specified. This file is used when the coverage data is provided to the framework in the Silk Central-specific XML format. It causes the report generation program to filter out all classes that are not specified in the filter file. This switch takes a single parameter.

Element Information

Number of Occurrences	1.
Parent Elements	`ProductConfiguration`.
Contents	None.

Remarks

Required. Defines the type of analysis and maximum session time.

Example

The following example shows a construction using RuntimeAnalysis following a ProductConfiguration tag. In this example, the Type attribute specifies a performance analysis with a maximum duration of 1000 seconds and suppression of UI error messages.

```
<?xml version="1.0" ?>
<ProductConfiguration xmlns="http://www.microfocus.com/products">
<RuntimeAnalysis Type="Performance" MaximumSessionDuration="1000"
NoUIMsg="true"/>
```

Service Element

Syntax

```
<Service
      CollectData = "true or false"
      Start = "true or false"
      RestartIfRunning = "true or false"
      RestartAtEndOfRun = "true or false"
      RepeatInjection = "true or false"
      >
      ...
</Service>
```

Attributes

CollectData	Optional. Specify `true` or `false`. Defaults to `true` if omitted. Specifies whether profiling will be enabled for the target service.
Start	Optional. Specify `true` or `false`. Defaults to `true` if omitted. Specifies if `DPAnalysis.exe` will start the specified target. If set to `false`, profiling will be enabled for this target but it will not be started; profiling will begin the next time the service is started (by whatever means).

RestartIfRunning	Optional. Specify `true` or `false`. Defaults to `false` if omitted. When you set RestartIfRunning to `true`, `DPAnalysis.exe` will attempt to restart the specified service if it is running on the host computer.
RestartAtEndOfRun	Optional. Specify `true` or `false`. Defaults to `false` if omitted. When you specify `true`, `DPAnalysis.exe` will attempt to restart the service (generating a session file) at the end of the run. If the service is the only process to be profiled, set this attribute to `false`.
RepeatInjection	Optional. Specify `true` or `false`. Defaults to `false` if omitted. Causes `DPAnalysis.exe` to profile the target in every time it runs until you explicitly specify `false`.

Element Information

Number of Occurrences	The configuration file must contain at least `1` `Process` or `1` `Service` element.
Parent Elements	`Targets`.
Contents	AnalysisOptions, Path, Arguments, Working Directory, ExcludeImages, Name, Host.

Remarks

Specifies a target service.

Example

The following example shows a construction using Service within a Targets element.

```
<Targets RunInParallel="true">
  <Service CollectData="true" Start="true" RestartIfRunning="true"
RestartAtEndOfRun="true">
  <Name>ServiceApp</Name>
  </Service>
</Targets>
```

Targets Element

Syntax

```
<Targets RunInParallel="true or false">   ...
</Targets>
```

Attributes

RunInParallel	Optional. Specify `true` or `false`. Defaults to `true` if omitted. If you specify more than one target, defines how the targets are run. When `RunInParallel` is `true`, DPAnalysis starts the target processes and services one right after the other; multiple targets will run at the same time (parallel). Otherwise, DPAnalysis starts target `N + 1` only after process `N` has launched and exited; targets run one at a time (serial).

Element Information

Number of Occurrences	1.
Parent Elements	`RuntimeAnalysis`.

Contents	Process, Service.

Remarks

Required. Begins a block of one or more `<Process>` or `<Service>` entries. Target processes and services are started in the order they are listed in the configuration file.

Example

The following example shows a construction using Targets to specify analysis of one <Service> and two <Process> elements. Note that RunInParallel is **true** so that, for this example, the targets would run in parallel.

```
<Targets RunInParallel="true">
  <Service CollectData="true" Start="true">
    <AnalysisOptions NM_METHOD_GRANULARITY="0" EXCLUDE_SYSTEM_DLLS="1" />
                <Name>ServiceApp</Name>
                <Host>remotemachine</Host>
  </Service>
  <Process CollectData="true" Spawn="true" NoWaitForCompletion="true">
    <AnalysisOptions NO_MACH5="1" NM_METHOD_GRANULARITY="1" SESSION_DIR="c:
\MyDir" />
    <Path>ClientApp.exe</Path>
    <WorkingDirectory>c:\temp</WorkingDirectory>
  </Process>
  <Process CollectData="true" Spawn="true" NoWaitForCompletion="true">
    <AnalysisOptions NO_MACH5="1" NM_METHOD_GRANULARITY="1" SESSION_DIR="c:
\MyDir" />
    <Path>TestApp02.exe</Path>
    <WorkingDirectory>c:\temp</WorkingDirectory>
  </Process>
</Targets>
```

WorkingDirectory Element

Syntax

```
<WorkingDirectory> c:\MyWorkingDir </WorkingDirectory>
```

Attributes

None.

Element Information

Number of Occurrences	1 per `Process` or `Service`.
Parent Elements	`Process`, `Service`.
Contents	Path to the target directory.

Remarks

Optional. No default if omitted. Set the working directory of the target process or service.

Example

The following example shows a construction using WorkingDirectory nested within a parent Process element.

```
<Process CollectData="true">
<WorkingDirectory>c:\temp</WorkingDirectory>
</Process>
```

Enabling Code Analysis for Execution Plans

To enable code analysis for an execution plan:

1. In the menu, click **Execution Planning** > **Details View**.
2. In the **Execution** tree, select an execution plan.
3. Click the **Deployment** tab.
4. In the **Code Analysis Settings** section of the **Deployment** page, click **Edit**. The **Edit Code Analysis Settings** dialog box displays.
5. Check the **Enable code analysis** check box.
6. Select a profile from the **Code Analysis Profile** list box.
7. In the **Hostnames** text box, enter a comma-separated list of host names, with port, if default port 19129 is not used, from which code analysis information is to be gathered.

   For example `labmachine1, labmachine2:8000, 198.68.0.1`. For each execution plan, you need to define the host names of the machine resources where the AUT is running. For example, with a client/server system, you must not only gather code coverage information on the client, which probably runs directly on an execution server, but also on the server, which likely runs on a different machine. This applies to all multi-tiered applications.

   Note: For JUnit code analysis runs, you do not need to specify a hostname.
8. Click **OK** to save your settings.

Note: Once code analysis has been defined for an execution plan, each future run of that execution plan will gather code coverage information from the defined host names. While monitoring an execution on the **Activities** page, you will see that after gathering the sources for tests, Silk Central gathers full code coverage information before beginning test runs. The Code Coverage Controller, which is integrated into each Silk Central execution server, controls all defined hosts during execution runs. For each test of an execution plan, the controller starts and stops all associated instances, collects XML-based code coverage files for the test, and merges the results into a single file. The test then saves the merged code coverage file to its execution results.

Code Analysis Details Page

Reports > **Code Analysis** > **Details**

The **Details** page displays code-coverage information for selected products, versions, and builds at the product, package, and class levels.

Product level view displays a list of covered and not-covered packages for specific products and product builds. By clicking a package name in **Product** view you can drill down to view code-coverage information for the classes that are included in that package.

Product view displays the following attributes for a selected product:

Attribute	Description
Name	Product name
Statements	Total amount of statements

Attribute	Description
Packages/Namespaces	Histogram bar view that includes the following figures: • Total percentage of packages/namespaces that are covered • Number of covered packages/namespaces, in green • Number of uncovered packages/namespaces, in red
Classes	Histogram bar view that includes the following figures: • Total percentage of classes that are covered • Number of covered classes, in green • Number of uncovered classes, in red
Methods	Histogram bar view that includes the following figures: • Total percentage of methods that are covered • Number of covered methods, in green • Number of uncovered methods, in red

Package level view displays a list of covered and not-covered classes for specific products and product builds. By clicking a class name in **Package** view you can drill down to view code-coverage information for the methods that are included in that class.

Package view displays the following attributes for each package in the selected product, across multiple rows:

Attribute	Description
Package	Package name
Statements	Total statements
Classes	Histogram bar view that includes the following figures: • Total percentage of classes that are covered • Number of covered classes, in green • Number of uncovered classes, in red
Methods	Histogram bar view that includes the following figures: • Total percentage of methods that are covered • Number of covered methods, in green • Number of uncovered methods, in red

Class level view displays a list of covered and not-covered methods for specific products and product builds.

Class view displays the following attributes for each method, across multiple rows:

Attribute	Description
Name	Method name
Signature	Method signature
Statements	Total statements
Covered	Covered status of method: • `True` indicates that the method is covered

Attribute	Description
	• `False` indicates that the method is not covered

Note: When the page includes more elements than can be displayed at once without impacting response time, elements are displayed in increments. Page number links at the bottom of the page allow you to browse through the elements included on the page one page at a time. To display all elements as a single list, click the **[All]** link.

Latest Builds and Build Versions

When you select a product in the navigation tree, the list of packages and classes with coverage information for the latest covered version, which implies the latest covered build for the version, is displayed automatically. When you select a product version in the navigation tree, coverage information for the latest covered build of the version is displayed automatically.

Note: If you are running multiple applications against the same build, the coverage from all of the applications will be merged together.

Note: Code analysis across a range of builds is not supported by Silk Central currently.

Generating Code-Change Impact Reports

To generate a code-change impact report:

1. In the menu, click **Projects** > **Project List**.
2. Select the project for which you want to analyze code-coverage data.
3. In the menu, click **Reports** > **Code Analysis**.
4. Click **Create Code Change Impact Report**. The **Select Classes for Report** dialog box appears.
5. Select a **Product** and **Version** if you want to change the pre-selected values.
6. In the **Filter** field, type criteria to filter the packages/namespaces. For example, entering the string `published` will only list packages/namespaces that contain the string `published` in their names.
7. Select a package from the **Packages/Namespaces** list.

   Use **Ctrl+Click** or **Shift+Click** to select multiple packages/Namespaces.

   The classes that are available in the selected package/namespace are displayed in the **Classes** list.
8. In the **Classes** list, select a class that you want to have included as a source in your report.

   Use **Ctrl+Click** or **Shift+Click** to select multiple classes.
9. Click **Add**. The selected classes are added to the **Selected classes** list.
10. Repeat the preceding steps until you have added all required classes to the **Selected classes** list.

    You can remove classes from the **Selected classes** list by selecting entries and clicking **Remove** or by clicking **Remove All**.
11. Select a report from the **Select report** list.
12. Click **OK** to generate the report.

Select Classes for Report Dialog Box

Reports > **Code Analysis** > **Create Code Change Impact Report**

The **Select Classes for Report** dialog box enables you to select class files to be included as sources in a *Code-Change Impact Report*. The dialog box includes the following elements:

Element	Description
Product	Name of the product for which code analysis information is required.
Version	Version of the product for which code analysis information is required.
Filter	Enter criteria for filtering the packages. For example, if you type the string `published`, the *Code-Change Impact Report* displays only packages that contain the string “published” in their names.
Packages/Namespaces	Product packages/namespaces that are specified for coverage in the selected version.
Classes	All classes included in the selected package.
Add	Click to add the selected classes for code-coverage analysis.
Selected Classes	Displays the classes that are already selected for code-coverage analysis.
Remove	Click to remove the selected class from the **Selected Classes** list box.
Remove All	Click to remove all classes from the **Selected Classes** list box.
Select Report	Type of the *Code-Change Impact Report*.

Viewing Code-Coverage Information for Packages/Namespaces

To view code-coverage information for a package/namespace:

1. In the menu, click **Projects** > **Project List**.
2. Select the project for which you want to view code-coverage information.
3. In the menu, click **Reports** > **Code Analysis**.
4. In the **Code Analysis** tree, expand the project node in the navigation tree to display the products that are available for the selected project.
5. Expand a product node to display the versions that are available for that product.
6. Expand a version node to display the builds that are available for that version.
7. Select a specific build. Code coverage information for the selected build displays on the **Details** page.

Note: To view code-analysis information for all products click **Show all products** on the toolbar. Products of other projects are then listed under the **Other Projects** node.

Default Reports

Code-Change Impact Reports

The code-change impact reports enable you to perform testing-impact analysis, effort analysis, and risk analysis. You can select classes of interest and, by applying report templates, generate reports that help you determine the test impact that changing the selected classes will result in.

For selected classes, you can choose from report templates that analyze the test impact of proposed code changes.

Code-Change Impact Report for Tests

This report displays the following columns for each affected test:

- Unique key: Test + Execution plan
- Project name
- Test name
- Test hierarchy
- Execution plan
- Test type
- Duration of test
- Status of test, cumulative across all runs of build range
- Last build executed
- # Times executed for this version
- # Times passed for this version + # Times failed for this version
- Coverage index: Methods covered by the test for the specified classes / total methods of specified classes.
- Time stamp
- Test creator
- Test executor. Manual tester or execution server

Code-Change Impact Report for Execution Plans

This report is valuable as it identifies the execution plans that need to be re-run following code changes.

This report displays the following columns for each affected execution plan:

- Project name
- Execution plan name
- # Manual tests
- # Automated tests
- # Manual tests in coverage path
- # Automated tests in coverage path
- Duration of manual tests
- Duration of automated tests
- Duration of manual tests in coverage path
- Duration of automated tests in coverage path

Use Cases for Reports

The following typical code-change impact issues can be addressed with code-change impact reports:

Testing impact analysis	You want to know which tests you should run as a result of a specific change to the code. • Select a particular class. • Select and execute the *Code Change Impact - Tests* report. • Observe the list of tests that cover the classes that were touched in this version.
Effort analysis	You want to know how many hours of automated and manual testing will be required to properly cover a particular set of changes to the code. • Select a particular class . • Select and execute the *Code Change Impact - Execution Plans* report. • Observe the required time (cost) for automated and manual tests.

Code Coverage Reports

This section explains the code coverage reports that ship with Silk Central. Code coverage reports offer a detailed overview of your product's code coverage over a period of time or range of builds.

Code Coverage Trend Report

Shows the improvement trend of code coverage for methods, classes, and packages for a product over a selected range of builds.

Input Parameters

The input parameters for a code coverage trend report are:

Parameter	Description
product_ProductVersion	Version of the selected product.
BuildFrom	First build in the range of examined builds.
BuildTo	Last build in the range of examined builds.

General Report Information

Element	Description
Report Description	Description of the report.
Report Executed By	User who executed the report.
Product Information	Name, version, and examined build range of the selected product.

Code Coverage Trend Graph

Shows the overall percentage of code coverage for the selected product over the selected range of builds. Code coverage for specific packages/namespaces, classes, and methods is displayed individually.

Code Coverage Trend Details

Displays the information from the *Code Coverage Trend Graph* in a tabular format.

Method Coverage Comparison Report

Compares method coverage for all included packages/namespaces across two product builds.

Input Parameters

The input parameters for a method coverage comparison report are:

Parameter	Description
Build 1	Number of the first build that is to be compared.
Build 2	Number of the second build that is to be compared.
Product	The examined product.
Threshold	The minimum amount of change that results in a package/namespace appearing in the report. Packages/namespaces with a smaller percentage of change are not shown in the report. The threshold range is from `0` to `100` percent.

General Report Information

Element	Description
Project Name	Name of the project.
Report Description	Description of the report.
Report Executed By	User who executed the report.
Product	Name of the selected product.
Build 1	Number of the first build to be compared.
Build 2	Number of the second build to be compared.

Method Coverage Information

The method coverage table shows the following information for all packages/namespaces that have changes in method-coverage percentage that are bigger than the threshold:

Element	Description
Package Name	Name of the package.
Statements	Number of statements that are included in the package.
% Method Coverage	Percentage of method coverage in the second build.
% Difference	Difference in the code coverage percentage from the first build to the second build. The difference is negative when code coverage drops.

Context-Sensitive Reports

The areas **Requirements**,**Tests**, and **Executions** offer dynamically-generated lists of reports that are specific to each unit. Context-sensitive report lists are helpful because they offer report types that relate directly to your current activities.

Requirements	Context-sensitive report lists in the **Requirements** tree offer all reports that take a requirement ID as an input parameter.
Tests	Context-sensitive report lists in the **Tests** tree offers all reports that take a test ID as an input parameter.
Executions	Context-sensitive report lists in the **Execution Plans** tree offer all reports that take an execution-plan ID as an input parameter. On the execution-plan **Runs** tab, context-sensitive report lists offer all reports that have the following configuration: • **Result category** = Execution Plan • **Selection criteria** = Execution Plan Run • **Property** = ID

When you select a report from a context-sensitive report list, you are taken directly to that report's default tab in the **Reports** area. This default destination-tab behavior can be configured using each report's **Edit Report** dialog box.

There are two types of reports that appear in the context-sensitive report lists: reports that you have already accessed and reports that you have not yet accessed. Reports that you have accessed previously appear above a line separator in the menu. These reports are listed chronologically with the most recently viewed report at the top of the list. Other default reports that are available, but have not yet been accessed, appear beneath the line separator.

In addition to the default-configured context-sensitive reports, you can configure new and existing reports to be included in the context-sensitive report list of each area. Context sensitivity is added to reports on a per-user, per-report basis only.

Accessing Context-Sensitive Execution Reports

Note: Reports must be enabled as context-sensitive reports to make them available in the **Executions** area.

To access a context-sensitive execution-plan report:

1. In the menu, click **Execution Planning**.
2. Right-click an execution plan in the **Execution Plans** tree and choose **Reports**.
3. Select a report from the **Reports** sub-menu.

   You are taken to the **Parameters** tab of the selected report in the **Reports** area where the ID of the execution plan is pre-populated as a value.

   Note: You can configure this destination-tab linking behavior by using each report's **Edit Report** dialog box.
4. Edit the parameters of the report as required.
5. Complete configuration of the report on the **Data**, **Report**, or **Chart** page.

Accessing Context-Sensitive Execution-Plan-Run Reports

Note: Reports must be enabled as context-sensitive reports to make them available in the **Executions** area.

To access a context-sensitive execution-plan-run report:

1. In the menu, click **Execution Planning** > **Details View**.
2. Click the **Runs** tab.
3. Right-click a run and choose **Reports**.
4. Select a report from the **Reports** sub-menu.

   You are taken to the **Parameters** page of the selected report in the **Reports** area where the ID of the run is pre-populated as a value.

   Note: You can configure this destination-tab linking behavior by using each report's **Edit Report** dialog box.
5. Edit the parameters of the report as required.
6. Complete configuration of the report on the **Data**, **Report**, or **Chart** page.

Accessing Context-Sensitive Requirements Reports

Note: Context-sensitive reports are available in the **Requirements** area only for those reports that accept a requirement ID as an input parameter.

To access a context-sensitive requirements report:

1. In the menu, click **Requirements** > **Details View** .
2. Right-click a requirement in the **Requirements** tree and choose **Reports**.
3. Select a report from the **Reports** sub-menu.

   You are taken to the **Parameters** page of the selected report in the **Reports** area where the requirement's ID is pre-populated as a value.

   Note: You can configure this destination-tab linking behavior by using each report's **Edit Report** dialog box.
4. Edit the parameters of the report as required.
5. Complete configuration of the report on the **Data**, **Report**, or **Chart** page.

Accessing Context-Sensitive Test Reports

Note: Context-sensitive reports are available in the **Tests** area only for those reports that accept a test ID as an input parameter.

To access a context-sensitive test report:

1. In the menu, click **Tests** > **Details View** .
2. Right-click a test, a folder, or a test container in the **Tests** tree or the **Grid View** and choose **Reports**.

   Note: When multi-selecting tests in the **Grid View**, the context-sensitive reporting is disabled.
3. Select a report from the **Reports** sub-menu.

   You are taken to the **Parameters** page of the selected report in the **Reports** unit where the ID of the test is pre-populated as a value.

   Note: You can configure this destination-tab linking behavior by using each report's **Edit Report** dialog box.
4. Edit the parameters of the report as required.
5. Complete configuration of the report on the **Data**, **Report**, or **Chart** page.

Enabling Context-Sensitive Execution Reports

Explains how to enable execution-plan and execution-plan-run reports to be displayed in context-sensitive report lists.

To enable a simple report to be displayed in context-sensitive report lists in the **Execution** tree or the **Runs** page:

1. Create a new report.

   For additional information, see *Creating New Reports*.
2. Select `Execution Plan` from the **Result category** list box.
3. Select the **Selection criteria** for the context-sensitive report.
4. Select `ID` from the **Property** list box.
5. Type a value in the **Value** text box.

   For example, the ID number of an existing execution plan or an existing execution-plan run.
6. Click **Finish**.

Enabling Advanced Context-Sensitive Execution Reports

To enable an advanced report to be displayed in context-sensitive report lists in the **Execution Plans** tree or on the **Runs** page:

1. Create a report that includes one of the following:

   - An execution-plan ID as an input parameter for the report to be displayed in the **Execution Plans** tree.
   - An execution-plan-run ID as an input parameter for the report to be displayed on the **Runs** page.

   For additional information, see *Creating New Reports* and *Writing Advanced Queries with SQL*.
2. To make an advanced query available in the context menu of the **Executions** area, insert the parameter name `execProp_Id_0` as input for *ExecDef_ID_pk_fk*.

   For example, your report's SQL statement might have defined a hard-coded database-column value, such as `ExecDef_ID_pk_fk = 68`. To edit this report so that it receives column-name values dynamically, replace the static value of `68` with `${execProp_Id_0 | 68}`.

Note: For additional information about tables and column-name definitions, refer to the *Silk Central Database Model Schema*.

Enabling Context-Sensitive Requirement Reports

Explains how to enable requirements reports to be displayed in the context-sensitive report list.

To enable a simple report to be displayed in the context-sensitive report list of the **Requirements** area:

1. Create a new report.
   For additional information, see *Creating New Reports*.
2. Select `Requirement` from the **Result category** list box.
3. Select the **Selection criteria** for the context-sensitive report.
4. Type a value in the **Value** text box.
   For example, the ID number of an existing requirement.

Enabling Advanced Context-Sensitive Requirement Reports

To enable an advanced report to be displayed in context-sensitive report lists in the **Requirements** area:

1. Create a report that includes a requirement ID as an input parameter.
   For additional information, see *Creating New Reports* and *Writing Advanced Queries with SQL*.
2. To make an advanced query available in the context menu of the **Requirements** unit, insert the parameter name `reqProp_Id_0` as input for *Req_ID_pk_fk*.
   For example, your report's SQL statement might have defined a hard-coded database-column value, such as `Req_ID_pk_fk = 68`. To edit this report so that it receives column-name values dynamically, replace the static value of `68` with `${reqProp_Id_0 | 68}`.

Note: For additional information about tables and column-name definitions, refer to the *Silk Central Database Model Schema*.

Enabling Context-Sensitive Test Reports

Explains how to enable test reports to be displayed in the context-sensitive report list.

To enable a simple report to be displayed in the context-sensitive report list of the **Tests** area:

1. Create a new report.
   For additional information, see *Creating New Reports*.
2. Select `Test` from the **Result category** list box.
3. Select the **Selection criteria** for the context-sensitive report.
4. Type a value in the **Value** text box.
   For example, the ID number of an existing test.

Enabling Advanced Context-Sensitive Test Reports

To enable an advanced report to be displayed in context-sensitive report lists in the **Tests** area:

1. Create a report that includes a test ID, a test folder ID, or a test container ID as an input parameter.
   For additional information, see *Creating New Reports* and *Writing Advanced Queries with SQL*.
2. To make an advanced query available in the context menu of the **Tests** area, insert the parameter name `tdProp_Id_0` as input for the test ID or `tfProp_Id` as input for the test folder ID or test container ID.

For example, your report's SQL statement might have defined a hard-coded database-column value, such as `TestDef_ID_pk_fk = 68`. To edit this report so that it receives column-name values dynamically, replace the static value of `68` with `${tdProp_Id_0 | 68}`.

Note: For additional information about tables and column-name definitions, refer to the *Silk Central Database Model Schema*.

Execution Planning Reports

This section explains the execution planning reports that ship with Silk Central. To ease the assessment of results, execution planning reports give you a detailed overview of the progress of your test executions and the status of defects, over a period of time, or over a range of builds.

Execution Plan Run Comparison Reports

Execution-plan run-comparison reports present an overview of the comparison between two execution-plan runs.

Note: Run-comparison reports are not suitable for the comparison of manual tests to automated tests. When the name of the report includes *(Last Two Runs)*, you can compare only the last two runs of the execution plan or test.

The following reports compare two execution-plan runs:

Report Name	Description
Execution Plan Run Comparison Report	The default execution-plan run-comparison report that compares two execution-plan runs.
Execution Plan Run Comparison Report – Failed in Newer Run	Compares only the failed tests of two execution-plan runs.
Execution Plan Run Comparison Report – Changed Status	Compares only those tests of two execution-plan runs, that changed their statuses.

The execution-plan run-comparison report provides the following information:

- Changes to the status of the execution plans
- Number of errors
- Number of warnings
- Context in which the execution plans were executed
- Execution duration of the assigned tests

Note: When the status of an assigned test changes to `Failed` between compared runs, the test is marked red. When the status of an assigned test changes to `Passed` between compared runs, the test is marked green.

General Report Information

This section provides the following general information about the report:

Element	Description
Project Name	Name of the active project.
Report Description	Description of the report.
Report Executed By	User who executed the report.

Execution Plan Run Comparison

This section identifies the following differences between the two runs:

Element	Description
ID	Identifier of the execution plan.
Name	Name of the execution plan.
Start Time	Execution time of each run.
Duration	Duration of each run.
Run ID	ID of each execution plan run.
Product	Name of the product specified for the run.
Version	Version of the product specified for the run.
Build	Build of the product specified for the run.
Status	Status of each execution-plan run.

Test Run Comparison

This section provides the following details about the tests assigned to each execution plan run:

Element	Description
ID	ID of each test.
Name	Name of each test.
Status	Status of each test in each execution-plan run.
Duration	Duration of each test in each execution-plan run.
Errors	Number of errors of each test in each execution-plan run.
Warnings	Number of warnings of each test in each execution-plan run.

Execution Plan Run Errors Report

The *Execution Plan Run Errors* report provides a detailed list of all tests that did not pass an execution-plan run and the reason they did not pass. All errors that occurred during the execution-plan run are listed in this report. The user can quickly assess results and easily identify any unwanted effects in the execution-plan run.

Input Parameters

The input parameter for an **Execution Plan Run Errors** report is the identifier of the execution-plan run.

General Report Information

This section provides the following general information about the report:

Element	Description
Project Name	Name of the active project.
Report Description	Description of the report.
Report Executed By	User who executed the report.

Execution Plan Information

This section provides the following information about the execution plan:

Element	Description
Execution Plan ID	Identifier of the execution plan.
Execution Plan Name	Name of the execution plan.
Run ID	Identifier of the execution-plan run.
Product	Name of the product specified for the execution-plan run.
Version	Version of the product specified for the execution-plan run.
Build	Build of the product specified for the execution-plan run.
Execution Server	Execution server where the execution plan was run.
Keywords	Keywords assigned to the execution-plan run.
Execution Timestamp	Time and date of the execution-plan run.
Duration	Duration of the execution-plan run.
Status	Status of all tests assigned to the execution plan.

Test Runs

This section provides the following information about each test run that did not pass:

Element	Description
ID	Identifier of the test.
Name	Name of the test.
Duration	Duration of the test run.
Errors	Amount of errors that occurred during the test run.
Warnings	Amount of warnings that occurred during the test run.
Messages	If there are messages available, the content of the **Messages** page of the **Test Run Dialog** is shown here.

Not Passed Tests Report

The *Not Passed Tests Report* presents an overview of all not-passed tests of a folder or project in the **Executions** area. You can use this report for error analysis, for example during configuration testing.

Input Parameters

The input parameter for a *Not Passed Tests Report* is the identifier of the configuration suite, folder, or project.

General Report Information

This section provides the following general information about the report:

Element	Description
Project Name	Name of the active project.
Report Description	Description of the report.
Report Executed By	User who executed the report.

Specific Information for Each Test

For each test, the report provides a grid with an entry for each execution plan in context of which the test is not passed. Click on the name of the test to view the **Runs** page of the test in the **Tests** area. The grid includes the following columns:

Column	Description
ID	Identifier of the execution plan.
Execution Plan	Name of the execution plan. Click to view the runs of the execution plan in the **Executions** area.
Status	The status of the last run of the test in the context of the execution plan. For data-driven tests or test packages, the status is displayed as a bar graph.
Run ID	Identifier of the last run of the test. Click to view the results of the run in the **Test Run Results** dialog box.

Not Passed Tests per Execution Plan Report

The *Not Passed Tests per Execution Plan Report* presents an overview of all not-passed tests per configuration of a configuration suite, or per execution plan of a folder or project in the **Executions** area. You can use this report for error analysis, for example during configuration testing.

Input Parameters

The input parameter for a *Not Passed Tests per Execution Plan Report* is the identifier of the configuration suite, folder, or project.

General Report Information

This section provides the following general information about the report:

Element	Description
Project Name	Name of the active project.
Report Description	Description of the report.
Report Executed By	User who executed the report.

Specific Information for Each Execution Plan

For each configuration or execution plan, the report provides a grid with an entry for each test in the configuration or execution plan. Click on the name of the configuration or execution plan to view the **Properties** page of the configuration or execution in the **Execution** unit. The grid includes the following columns :

Column	Description
ID	Identifier of the test.

Column	Description
Test	Name of the test. Click to view the runs of the test in the **Tests** area.
Status	The status of the last run of the test in the context of the execution plan. For data-driven tests or test packages, the status is displayed as a bar graph.
Run ID	Identifier of the last run of the test. Click to view the results of the run in the **Test Run Results** dialog box.

Execution Status Overview Report

The *Execution Status Overview* report presents an overview of the execution status of the selected node and all execution plans below the node.

Input Parameters

The input parameter for a *Execution Status Overview* report is the identifier of the node in the **Execution Plans** tree.

General Report Information

This section provides the following general information about the report:

Element	Description
Project Name	Name of the project that includes the selected node.
Report Description	Description of the report.
Report Executed By	User who executed the report.

Overall Status Information

Provides an overview, including the aggeregated status, of the selected node and all execution plans below the node.

Element	Description
Name	Name of the selected **Execution** tree node.
Execution Plans	Amount of execution plans that are that are below the selected node and were executed.
Tests	Amount of tests that are assigned to the execution plans below the selected node.
Status	The aggregated status of the last run of the execution plans below the selected node. The status is displayed as a bar graph.
Duration	Accumulated duration of the last run of the execution plans below the selected node.

Status of Execution Plans

Provides detailed information on the execution status of the individual execution plans, including the selected node, that are below the selected node. Can include multiple tables, if the selection includes multiple parent tree nodes.

Column	Description
Name	Name of the execution plan. Click to view the properties of the execution plan in the **Executions** area.
Tests	Amount of tests that are assigned to the execution plan.

Column	Description
Status	The status of the last run of the execution plan.
Product	Name of the product that the execution plan is assigned to.
Version	Version of the product that the execution plan is assigned to.
Build	Build of the product that the execution plan is assigned to.
Start Time	Date and time the last run of the execution plan started.
Duration	Duration of the last run of the execution plan.

Issues Per Component Report

The *Issues Per Component report* offers an overview of all issues related to each component. In addition to offering basic issue tracking, this report assists in monitoring the overall issue trend for each component.

Performance Trend Reports

This section explains the performance trend reports that ship with Silk Central. Performance trend reports show the evolution of the application under test's performance over a specified period of time. The input data for the performance reports is provided by Silk Performer load tests.

Average Page-Time Trend Report

Shows the page times per page for all tests executed for the specified test within the specified time range. The performance trend of the page times for the tested pages is shown in a graph.

Input Parameters

The input parameters for an *Average Page-Time Trend* report are:

Parameter	Description
Date From (DD-MON-YYYY)	Starting date for the time range. For example `06-DEC-2008`.
Date To (DD-MON-YYYY)	End date for the time range. For example `16-JAN-2009`.
Exclude Runs with more than <nnn> Errors	Runs that generate more errors than specified here are not included in the report. Use this setting to avoid that outliers skew the trend curve.
Maximum Value for y-Axis	Limits the y-axis of the graph to the specified value. Transaction busy-times that exceed this value are cut off at the top. This setting is useful to prevent the flattening of lines caused by outliers.
Measure Filter	Shown measures are limited to those including the specified string in their name. This field has to be filled out. To display all available measures, set the measure filter to `%`. For example, to show only measures that include the word "unit" at any position in their names, set the measure filter to `%unit%`.
Test ID	Identifier of the test for which you want to view the report.

General Report Information

Lists overview information like the name of the current project, the report description, and the user who executed the report.

Test Information

Lists general information about the test.

Silk Performer Project Information

Lists general information about the Silk Performer project that is used to perform the load test.

Page Time Trend Information

The trend charts show the page time trend over the selected time range for all filtered measures. The minimum, maximum, and average page time curves are shown in each chart. The displayed values in each chart are cut at the selected maximum y-axis value.

Average Transaction Busy-Time Trend Report

Shows the transaction busy time per transaction for all tests executed for the specified test within the specified time range. The performance trends of the transaction busy-times for the tested transaction are displayed in trend charts.

Input Parameters

The input parameters for an *Average Transaction Busy-Time Trend* report are:

Parameter	Description
Date From (DD-MON-YYYY)	Starting date for the time range. For example `06-DEC-2008`.
Date To (DD-MON-YYYY)	End date for the time range. For example `16-JAN-2009`.
Exclude Runs with more than <nnn> Errors	Runs that generate more errors than specified here are not included in the report. Use this setting to avoid that outliers skew the trend curve.
Maximum Value for y-Axis	Limits the y-axis of the graph to the specified value. Transaction busy-times that exceed this value are cut off at the top. This setting is useful to prevent the flattening of lines caused by outliers.
Test ID	Identifier of the test for which you want to view the report.
Transaction Filter	Shown transactions are limited to those including the specified string in their name. This field has to be filled out. To display all available transactions, set the transaction filter to `%`. For example, to show only transactions that include the word "unit" at any position in their names, set the transaction filter to `%unit%`.

General Report Information

Lists overview information like the name of the current project, the report description, and the user who executed the report.

Test Information

Lists general information about the test.

Silk Performer Project Information

Lists general information about the Silk Performer project that is used to perform the load test.

Transaction Busy-Time Trend Information

The trend charts show the transaction busy-time trend over the selected time range for all filtered transactions. The minimum, maximum, and average transaction busy-time curves are shown in each chart. The displayed values in each chart are cut at the selected maximum y-axis value.

Custom Measure Trend Report

Shows the average, minimum, and maximum values of the defined measure or measures for all tests executed for the specified test within the specified time range. The performance trend of the values for each tested measure is shown in a graph.

Input Parameters

The input parameters for a *Custom Measure Trend* report are:

Parameter	Description
Date From (DD-MON-YYYY)	Starting date for the time range. For example `06-DEC-2008`.
Date To (DD-MON-YYYY)	End date for the time range. For example `16-JAN-2009`.
Exclude Runs with more than <nnn> Errors	Runs that generate more errors than specified here are not included in the report. Use this setting to avoid that outliers skew the trend curve.
Maximum Value for y-Axis	Limits the y-axis of the graph to the specified value. Measures that exceed this value are cut off at the top. This setting is useful to prevent the flattening of lines caused by outliers.
Measure Name	Name of the custom measure for which you want to view the report. For example *CreateTestDefinition*.
Measure Type	Type of the custom measure. For example `Transaction(BusyTime)[s]`.
Test ID	Identifier of the test for which you want to view the report.

General Report Information

Lists overview information like the name of the current project, the report description, and the user who executed the report.

Test Information

Lists general information about the test.

Silk Performer Project Information

Lists general information about the Silk Performer project that is used to perform the load test.

Custom Measure Trend Information

The trend chart shows the performance trend over the selected time range for the selected measure. The minimum, maximum, and average measure curves are shown in the chart. The displayed values in the chart are cut at the selected maximum y-axis value.

Overall Page-Time Trend Report

Shows overall page times, aggregated over all user types, for all tests executed for the specified test within the specified time range. The performance trend of the page times for the tested page is shown in a graph.

Input Parameters

The input parameters for an *Overall Page-Time Trend* report are:

Parameter	Description
Date From (DD-MON-YYYY)	Starting date for the time range. For example `06-DEC-2008`.
Date To (DD-MON-YYYY)	End date for the time range. For example `16-JAN-2009`.
Exclude Runs with more than <nnn> Errors	Runs that generate more errors than specified here are not included in the report. Use this setting to avoid that outliers skew the trend curve.
Maximum Value for y-Axis	Limits the y-axis of the graph to the specified value. Transaction busy-times that exceed this value are cut off at the top. This setting is useful to prevent the flattening of lines caused by outliers.
Test ID	Identifier of the test for which you want to view the report.

General Report Information

Lists overview information like the name of the current project, the report description, and the user who executed the report.

Test Information

Lists general information about the test.

Silk Performer Project Information

Lists general information about the Silk Performer project that is used to perform the load test.

Overall Page-Time Trend Information

The trend chart shows the overall page-time trend over the selected time range for all pages. The minimum, maximum, and average overall page-time curves are shown in the chart. The displayed values in the chart are cut at the selected maximum y-axis value.

Overall Transaction Busy-Time Trend Report

Shows overall transaction busy-time, aggregated over all user types, for all tests executed for the specified test within the specified time range. The performance trend of the transaction busy-times for the tested transaction is displayed in a trend chart.

Input Parameters

The input parameters for an *Overall Transaction Busy-Time Trend* report are:

Parameter	Description
Date From (DD-MON-YYYY)	Starting date for the time range. For example `06-DEC-2008`.
Date To (DD-MON-YYYY)	End date for the time range. For example `16-JAN-2009`.
Exclude Runs with more than <nnn> Errors	Runs that generate more errors than specified here are not included in the report. Use this setting to avoid that outliers skew the trend curve.
Maximum Value for y-Axis	Limits the y-axis of the graph to the specified value. Transaction busy-times that exceed this value are cut off at the top. This setting is useful to prevent the flattening of lines caused by outliers.

Parameter	Description
Test ID	Identifier of the test for which you want to view the report.

General Report Information

Lists overview information like the name of the current project, the report description, and the user who executed the report.

Test Information

Lists general information about the test.

Silk Performer Project Information

Lists general information about the Silk Performer project that is used to perform the load test.

Overall Transaction Busy-Time Trend Information

The trend chart shows the overall transaction busy-time trend over the selected time range for all transactions. The minimum, maximum, and average transaction busy-time curves are shown in the chart. The displayed values in the chart are cut at the selected maximum y-axis value.

Project Overview Report

Silk Central > **Tracking** > **Project Overview Report**

The *Project Overview Report* contains a high-level overview of the status of the selected project.

Requirements Reports

This section describes the requirements-related reports that ship with Silk Central. Requirements reports detail the status of functional requirements, for example compatibility requirements, GUI requirements, or feature requirements, which must be met during development. Requirements may also relate to product management objectives such as reliability, scalability, and performance. The requirement-management reports help managers to determine if adequate test coverage is established to verify that system requirements are met during development. When a report references a requirement that includes HTML-formatted content, that content is rendered in the report.

Status Reports

The following status reports are available for the **Requirements** area:

Report	Description
Requirements Status Overview	Represents a grouped summary of all requirements by current requirement coverage. Coverage is expressed by the statuses `Passed`, `Failed`, `Not Executed`, and `Not Covered`.
Top-Level Requirement Coverage	Represents a listing of all top-level requirements. For each requirement the number of child requirements, that are covered and not-covered by tests, is displayed.
Status of Requirements with Priority Higher than 'X'	Represents a summary of all requirements by current requirement coverage. The returned group of requirements is restricted by the `Priority` parameter, which specifies the lowest requirement priority that is considered in the data.
Requirement Impact Analysis Report	Displays the test details grouped by the execution plan that is associated to the requirement. This report allows the user to gain insight into testing assets that may

Report	Description
	be impacted by a change to the requirement. The report contains the name, status, date/time of last execution, manual testers, planned time, and issues of each test. The following statuses are used: **Status** — **Description** **Passed** — The test passed. **Failed** — The test failed. **N/A** — The test is associated to a requirement but is not submitted for execution. **Not Executed** — The test is associated to a requirement and is submitted for execution but not executed yet.
Project Requirement Traceability Report	Displays all requirements in a project along with their associated tests and issues. The following statuses are used: **Status** — **Description** **Passed** — The test passed. **Failed** — The test failed. **N/A** — The test is associated to a requirement but is not submitted for execution. **Not Executed** — The test is associated to a requirement and is submitted for execution but not executed yet.

Progress Reports

The following progress reports are available for the **Requirements** area:

Report	Description
Requirements Coverage Across Builds 'X' and 'Y'	Represents a summary of all requirements by current requirement coverage. The returned group of requirements is restricted by the `Priority` parameter, which specifies the lowest requirement priority that is considered in the data.
Requirements Coverage Over the Past 'X' Days	Represents a trend in requirements coverage by considering overall requirements coverage over 'X' days.
Specific Requirements Coverage Over the Past 'X' Days	Represents a trend in requirements coverage by considering specific requirements coverage over 'X' days.

Document Reports

The following document reports are available for requirements:

Report	Description
All Requirements	All requirements are represented with full requirement information.
Requirement with Child Requirements	The selected requirement is shown with its requirement ID. Full details regarding the child requirements of the requirement are displayed.

All Related Issues Report

The *All Related Issues* report provides a detailed list of all issues related to the assigned tests for a requirement, and explains the relationship between requirements, the assigned tests, and issues that have occurred.

Input Parameters

The input parameter for the *All Related Issues* report is the identifier of the requirement.

General Report Information

This section provides the following general information about the report:

Element	Description
Project Name	Name of the active project.
Report Description	Description of the report.
Report Executed By	User who executed the report.

Requirement Information

This section provides the following information about the requirement:

Element	Description
ID	Identifier of the requirement.
Name	Name of the requirement.
Description	Description of the requirement.
Nr. of Issues	Amount of issues related to the requirement or sub-requirements of the requirement.

Related Issues

Shows all issues related to the requirement or sub-requirements of the requirement in tabular form. The table provides the following information for each issue:

Column	Description
ID	Identifier of the issue. If an identifier is provided by the issue tracking system, this external identifier is used. The identifier is clickable if an external link is defined for the issue.
Synopsis	Meaningful short-description of the issue.
Status	Current status of the issue. If the status is provided by the issue tracking system, this external status is used.
Assigned by	Person who assigned the issue to the test.
Test ID	Identifier of the test in which the issue was discovered.
Test	Name of the test in which the issue was discovered.

Test Reports

This section explains the test-related reports that ship with Silk Central. Test reports give you an overview of the progress of your tests and the status of defects over a period of time or over a range of builds.

Status Reports

The following status reports are available for the **Tests** area:

Report	Description
Test Status Overview	Represents a status overview of all tests, structured by the statuses `Passed`, `Failed`, `Not Executed`, and `N/A`.
Test Status Overview (per test container)	Represents a status overview of all tests contained in a specific test container, structured by the statuses `Passed`, `Failed`, `Not Executed`, and `N/A`.
Tests per Component	Represents an overview of coverage of components by test; makes it easier to see where testing activity is needed.
Tests (per test container)	Represents a success rate for each test container by listing the number of passed tests.
Implemented Tests (per component)	Represents an overview of coverage of components by tests that have the *Implemented* attribute set to `Yes`.
Failed Tests (per component)	Represents an overview of failed tests per component; makes it easier to identify the most critical components in the environment.

Quality Goals Planning Report

Reports > **Details View** > **Tests** > **Status Report**

Represents the number of tests in each goal criteria along with the planned time rolled up to the goal criteria.

Note: The planned time value is only for manual tests. Automated tests do not have planned time.

This report is split three ways for each quality goal defined in a project:

- **Testing Scope** - compares the total number of tests available against the total number or required tests for each item in a quality goal.
- **Required Planned Time** - compares the required planned time among the items in the quality goals.
- **Value table** - lists all of the quality goal items along with related metrics: **Tests Available**, **Goal (%)**, **Tests Required**, and **Planned Time for Manual Tests**.

Note: For a multi select attribute/property, the test will be counted for each matching occurrence.

Quality Goals Execution Report

Reports > **Details View** > **Tests** > **Status Report**

Visually displays the number of tests executed for each item of each goal. This report is split into two sections for each quality goal defined in a project:

- **Execution Status Graph** - lists each quality goal item with a color-coded execution status and summary value.
- **Value table** - lists all of the quality goal items as well as their execution metrics: **Passed**, **Failed**, **Not Executed**, **N/A**, **Total**, **Test to Meet Goal**, and **Execution % to Goal**.

Progress Reports

The following progress reports are available for the **Tests** area:

Report	Description
Test Progress Across Builds 'X' and 'Y'	Represents a trend in test progress resulting from viewing test statuses in context with builds. The user must specify a build range consisting of a start- and an end-build.

Report	Description
Manual Test Coverage since Build <x> (cumulative)	Represents a trend in manual test progress, excluding all kind of automated tests, resulting from viewing test statuses in context with builds. The user must specify a starting build number which is used as basis for calculating a cumulative progress.
Automated Test Coverage for Builds (non-cumulative)	Represents the automated test coverage resulting from viewing test statuses in context with builds. The user must specify a version and a product and the report shows the test coverage that could be achieved with the automated tests per build.
Test Progress this Month	Represents a trend in test progress resulting from viewing test statuses for the current month.
Specific Test Node Progress Over the Past 'X' Days	Represents a trend in requirements coverage by considering a specific test node over the past 'X' days.
Tests Created in the Past 'X' Days (per component)	Represents a listing of new tests per component over the past 'X' days. Assists in identifying components that lack testing activity.
Test Progress Over the Past 'X' Days	Represents a trend in test progress by considering test statuses over the past 'X' days.
Percentage Testing Success Over the Past 'X' Days (per component)	Represents a percentage listing of successful tests per component over the past 'X' days; assists in identifying the components in the environment that are most critical.

Manual Test Reports

The following manual-test reports are available for the **Tests** area:

Report	Description
Planned vs. Actual Execution Time of Manual Tests (Summary)	Represents an overview of the deviation between planned and actual time for execution of manual tests, viewed on a daily basis.
Historic Planned vs. Actual Execution Time (per user)	Represents an overview of planned and actually required execution time for completed manual tests per user over a specific period of time.
Planned vs. Actual Execution Time (status per user)	Represents progress in terms of planned vs. actual hours of currently pending manual tests per user. Manual tests are only considered if test results have been entered by the user and are assigned to the user who enters the results.
Manual Test Result Document	An easily printable manual test case report for the latest results of all tests assigned to the specified execution plan.
Manual Test Result Document (Microsoft Word)	An easily printable manual test case report for the latest results of all tests assigned to the specified execution plan in a Microsoft Word document.
Manual Test Results by Execution Plan	An easily printable manual test case report for the latest results of all tests assigned to the specified execution plan folder or testing cycle.

Baseline Comparison Report

Reports > **Details View** > **<Active Project>** > **Test** > **Baseline Comparison** > **Baseline Comparison**

The *Baseline Comparison* report compares a baselined project with the baseline and displays the number of changed, deleted, and created tests.

Input Parameters

The input parameters for the *Baseline Comparison* report are the identifiers of the project and the baseline.

General Report Information

This section provides a description of the report and the name of the user who executed the report.

Project and Baseline Information

This section provides the information on the project and the baseline, including data related to the creation of the baseline.

Project and Baseline Summary

This section provides a sum of the created, changed, and deleted tests in the baseline and the project, in both tabular and graphical form.

Changes

This section provides a detailed list of all changed tests in the project and the baseline, with links to the tests.

Test Run Comparison Report

Test run-comparison reports present an overview of the comparison between two runs of a test.

Note: Run-comparison reports are not suitable for the comparison of manual tests to automated tests. When the name of the report includes *(Last Two Runs)*, you can compare only the last two runs of the execution plan or test.

The test run comparison report provides the following information:

- Changes to the status of the test
- Number of errors
- Number of warnings
- Context in which the test was executed
- Execution duration of the assigned tests
- Attributes and properties of the test
- Parameters of the test
- Success conditions for the test

General Report Information

This section provides the following general information about the report:

Element	Description
Project Name	Name of the active project.
Report Description	Description of the report.
Report Executed By	User who executed the report.

Test Information

This section provides the following information about the test:

Element	Description
ID	Identifier of the test.
Name	Name of the test.
Description	Description of the test.

Execution Information

This section provides the following information about each execution:

Element	Description
Execution ID	ID of each execution plan.
Execution Name	Name of each execution plan.
Run ID	ID of each execution plan run.
Product	Name of the product.
Version	Version of the product.
Build	Build of the product.

Test Run Comparison

This section identifies the following differences between the two runs:

Element	Description
Status	Status of each run.
Execution Timestamp	Timestamp of each run.
Duration	Duration of each run.
Errors	Number of errors in each test run.
Warnings	Number of warnings in each test run.
Previous Status	Status of each run previous to the last manual change.
Changed by	User who performed the last manual change to the status.
Change Comment	Describes the reason of the manual status change.

Attributes and Properties

This section identifies the attributes and properties of the two runs of the test at execution time.

Parameters

This section lists the parameters of the two runs of the test at execution time.

Success Conditions

This section lists the conditions at execution time for each of the two runs to be considered successful. If a condition is not satisfied, the test run is considered unsuccessful. Satisfied conditions are marked green, while unsatisfied conditions are marked red.

Projects

This section explains how to manage projects in Silk Central. The **Projects** area offers a high-level test-manager's view of all projects in your Silk Central installation, including a list of the most recent projects you have set to active, and enables you to move between projects. The area also enables you to manage projects and their settings, see high-level project status details, and view current execution statistics.

Build Information

Build information files contain version and build information that is used for execution runs. The build information files are typically stored and searched for on the execution server that is executing the execution run. If a build information file is not found on the execution server, the file is searched for on the application server. This behavior is beneficial when you have multiple execution servers and use a single build information file across all execution servers. You need to maintain only a single build information file on the application server. The build information files for automated tests that have no execution server assigned, and for all manual tests, are immediately searched for on the application server.

Silk Central is able to match up test results with build information and display test results for specific build numbers.

Build Information Updates

Build information files must be created and configured manually. Whenever a new build becomes available for testing on an execution server, update the build information to reflect the new build number.

You can update the build information in two different ways:

- Manually, by editing the files each time a new build is installed.
- Automatically, if you are using an automated build update process to update the build information file, for example through a VB Script.

Creating Build Information Files

To create a build information file:

1. On both the application and execution servers, navigate to: `C:\ProgramData\SilkCentral\BuildInfos`.
2. Create a build info file for your project based on the template file `BuildInfoExample.xml`. The template file contains the following code:

```
<?xml version="1.0" encoding="utf-8"?>
<ProjectBuildInfo>
  <BuildEntryList>
       <BuildEntry name="Demo Product">
            <Version>3.1</Version>
            <BuildNr>350</BuildNr>
    </BuildEntry>
       <BuildEntry name="Product2">
            <Version>4.2</Version>
            <BuildNr>613</BuildNr>
    </BuildEntry>
  </BuildEntryList>
</ProjectBuildInfo>
```

Note: To improve the structure of build information files, an element called `BuildEntryList` which contains a list of `BuildEntry` elements has been created. `BuildEntry` tags refer to specific products that are defined by the name attribute of `BuildEntry` elements.

3. Modify the file content to fit your environment.

   `Version` Used on both application and execution servers. The number of the version that is currently available for testing. The number is not necessarily the same for each execution server.

   `BuildNr` Used on both application and execution servers. The number of the build that is currently available for testing. The number is not necessarily the same for each execution server.

4. Distribute the build information file to the execution servers: `C:\ProgramData\SilkCentral\BuildInfos`.

   Note: When stored on both the application server and execution servers, build information files must have the exact same name.

5. Once you have created the build information files on the application server and each execution server, you must specify the file name in the settings of the corresponding project. Click **Projects:<Project Name>** > **Projects List** to view the list of projects assigned to you. Select the project to which you want to link the build information.

   Note: This must be done before the scheduling of any tests for the project. Otherwise previously scheduled tests will not be updated.

6. Click the **Project Settings** tab.
7. Click **Edit** to edit the project settings of the selected project. The **Edit Project Settings** dialog box opens.
8. Specify the name of the previously created XML file in the **Build information file name** text box.
9. Click **OK** to update the information. With all future test executions, Silk Central will read build information from the corresponding file and match test results with that information.

Comparing a Project with a Baseline

For baselined projects, you can use the *Baseline Comparison* report to see all the changes to the tests in the project since the moment the project was baselined.

To view the report:

1. In the menu, click **Projects** > **Project List**.
2. Use **CTRL + CLICK** to select the project and the baseline of the project that you want to compare.

   Tip: For easier selection of the baselines, don't click on the name of the baseline. Click into another column instead.

3. Right click on the selection.
4. Select **Reports** > **Baseline Comparison** .

   Note: The *Baseline Comparison* report must be executed once to display in the context-menu. If the report is grayed out, execute the report once in the **Reports** area.

Selecting Projects

To select a project:

1. In the menu, click **Projects** > **Project List**.
2. Click the name of the project to select it.

   Note: You can only select active projects.

Project List

Project:<Project Name> > **Project List**

The **Project List** page alphabetically displays all the projects and project baselines associated with your Silk Central installation. The page supports filtering, but does not support sorting. The displayed projects are sorted by name. Inactive projects and inactive project baselines are disabled.

Project baselines are sorted by their creation date, marked with a special icon, and shown as child nodes of the original project.

For more information, see *Managing Projects*.

The following columns are displayed for each project and project baseline:

Column	Description
Actions	**Delete** **Edit project** **Copy project** **Baseline project** **Export project** **Note:** This column will be hidden if the current user does not have modify/delete project permissions.
Project	Name of the project. Click to set the project as the active project.
Project ID	The identifier of the project.
Status	`Active` or `Inactive`. Click to switch the status.
Description	Project description.
Created On	Date and time the project was created.
Created By	User who created the project.
Changed On	Date and time the project was last changed.
Changed By	User who last changed the project.

Switching to a Recently-Accessed Project

You can quickly switch between the five Silk Central projects that you have most recently accessed.

To open one of the five projects you have most recently opened:

1. In the menu, click **Projects**.
2. In the **Recent Projects** list, click the name of the project that you want to access. You can continue to work with the selected project.

Settings Configuration

This section explains how to configure settings in Silk Central.

If you have SuperUser, Administrator, or Project Manager privileges, you can specify project-wide settings for Silk Central projects. Once global project settings are defined, they are available to all users who have access to those projects. Global project settings include the definition of filters, attributes, external product integrations, change notifications, build information, source files, file extensions, and more.

Project Settings

Project settings are settings that are specific to a project, for example the project release date.

Configuring Project Settings

To customize the project settings:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Project Settings** tab to view the current settings. The **Project Settings** page opens.
3. Click **Edit** to modify the current project settings.
4. The **Edit Project Settings** dialog box displays. You can specify the following information:

Build Information File Name	Build information files contain project information, including build number, build log location, error log location, and build location. Enter the name of your project's build information file in this text box. All test executions will read the build information from this specified file.
Project Release Date	Specify the planned release date for your project.
File Extensions to ignore in Results	Specify result file types or other file types that should not be saved as results for test executions.

   Note: File extensions must be separated by commas, for example, xlg, *_, res. Changes made in the **Build Information File Name** and **File Extensions to ignore in Results** fields will not effect scheduled tests. To redistribute tasks to execution servers, you must reschedule the tests, or disconnect from and reconnect to the database.
5. Click **OK** to save your project settings.

Project Settings Page

Project:<Project Name> > **Project Settings** > **Project Settings**

The **Project Settings** page lists the following high-level details about the active project:

Item	Description
Build information file name	Build information files contain project information, including build number, build log location, error log location, and build location. Enter the name of the active project's build information file in this field. All test executions will read the build information from this specified file.
Project release date	Scheduled release date of the active project in the format `MM/DD/YYYY`.
File extensions to ignore in results	Result file types or other file types that should not be saved as results for test executions.

Filters

Filters provide an efficient means of finding exactly the information you need, while excluding extraneous detail. Filters highlight only those elements that are relevant to your needs, and enable you to quickly sort through requirements, test elements, and execution plans. By defining global filters, you can create complex filter criteria that are available throughout Silk Central without defining filter criteria each time you need to filter a list.

Based on your needs, you can create new filters, edit existing filters, select filters, delete filters, or turn filtering off at the project level. Projects do not contain default filters. You can access and edit filters from the toolbars in the Silk Central units and from the **Project Settings** unit.

Note: Filters are not applied to reports. The **Recent Changes** filter enables you to view project-wide changes and additions that other users have made to tests since your last change acknowledgement. The **Show Changes/Show All** toggle button and the **Acknowledge** button in the **Tests** area help you to find out what changes other users have made. Your system administrator can configure email notifications that alert you to changes that are made to test settings. Email alerts include links that take you directly to a view of recent changes.

Creating Filters

To create a filter:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Filters** tab to view the list of available filters.
3. Click **New Filter**. The **New Filter** dialog box appears.
4. Type a **Name** for the new filter.

   This name will be displayed in list boxes when the filter becomes available.
5. Select a **Category** from the list to make the filter available in the **Requirements**, **Tests**, or **Execution Planning** area of Silk Central.
6. *Optional:* Type a **Description** for the new filter.
7. *Optional:* Check the **Visible to other users** check box to allow other users to see the filter.
8. *Optional:* Check the **Editable by other users** check box to allow other users to edit the filter.

   Note: If **Visible to other users** and **Editable by other users** are checked, the filter is public. To delete non-public (private) filters, you have to be the owner of the filter or you need the **Delete private filters of other users** permission.
9. Select a category of filter criteria from the **Selection criteria** list. The available categories depend on the general filter category you have selected.

   Note: You can combine filters by selecting **Nested Test Filter** or **Nested Requirement Filter**. Selecting one of these categories allows you to include an existing filter in your new filter.
10. Select a **Property**, **Operator**, and **Value** for the filter from the respective lists.

Property Available properties depend on the filter category that you have selected in the previous step. Defines the property for which you are defining a filter setting. If you have selected an attribute category, the property list includes custom attributes to query against.

Operator Specifies the filter operator. The operator depends on the property type you have selected. For example, if you have selected a property that is based on a string field type, the following operators are available:

Operator	Description
=	The string equals the defined value.
not	The string is different than the defined value.
contains	The string contains the defined value.
not contains	The string does not contain the defined value.

Value Enter the value that you want to filter out. Depending on the property type that you have selected, values will either be strings that you can enter into the field, or a selection of predefined values that you can select from the list box.

11. *Optional:* Click **More** if you want to add more than one filter category to the new filter. Repeat this procedure to define new categories.

    Note: If you define more than one filter category, you must define whether the categories need to be fulfilled in addition to the existing categories (AND relationship), or if the filter returns true when one of the filter categories is fulfilled (OR relationship). Select either **AND** or **OR** to define the filter category relationship. You cannot define nested AND, OR relationships.

12. *Optional:* To remove filter categories, click **Fewer**. This removes the last filter category.
13. Click **OK** to save the new filter, or click **Cancel** to abort the operation.

Editing Filters

To edit a filter:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.

2. Click the **Filters** tab to view the list of available filters.
3. Click the name of the filter you want to edit. The **Edit Filter** dialog box displays.
4. Edit the **Name** and **Description** of the filter.
5. Select a category of filter criteria from the **Selection criteria** list. The available categories depend on the general filter category you have selected.

   Note: You can combine filters by selecting **Nested Test Filter** or **Nested Requirement Filter**. Selecting one of these categories allows you to include an existing filter in your new filter.

6. Select a **Property**, **Operator**, and **Value** for the filter from the respective lists.

   Property Available properties depend on the filter category that you have selected in the previous step. Defines the property for which you are defining a filter setting. If you have selected an attribute category, the property list includes custom attributes to query against.

   Operator Specifies the filter operator. The operator depends on the property type you have selected. For example, if you have selected a property that is based on a string field type, the following operators are available:

Operator	Description
=	The string equals the defined value.
not	The string is different than the defined value.
contains	The string contains the defined value.
not contains	The string does not contain the defined value.

   Value Enter the value that you want to filter out. Depending on the property type that you have selected, values will either be strings that you can enter into the field, or a selection of predefined values that you can select from the list box.

7. Click **OK** to save the edited filter definition.

Deleting Filters

To delete a filter:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Filters** tab to view the list of available filters.
3. Click **Delete Filter** for the filter that you want to delete. A confirmation dialog box displays, asking you you to confirm the deletion.
4. Click **Yes** to delete the selected filter or **No** to abort the operation. If you click **Yes**, you will be returned to the filters list and the deleted filter is no longer displayed.

Filters Page

Project:<Project Name> > **Project Settings** > **Filters**

The **Filters** page lists the filters that are available to the active project. For each filter, the **Filters** page displays the following columns:

Item	Description
Actions	Actions that can be performed on the filter. Currently only **Delete**.
Name	Name of the filter.
Type	Filter category. Requirement, test, or execution.
Created On	When the filter was created.
Created By	User who created the filter.
Changed On	When the filter was most recently modified.
Changed By	User who most recently modified the filter.

Attributes

You can use custom attributes to customize the information for tests in the **Tests** area. While some attributes are made available by the integrated functionality of Silk Central, such as priority, components, and platforms, you may want to define custom attributes to categorize tests to your needs, or to make tests compatible with specific test cases.

Creating Custom Attributes

To create a custom attribute:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Attributes** tab to view the list of current attributes.
3. Click **New Attribute**. The **New Attribute** dialog box displays.
4. Type a **Name** for the new attribute. This name will be displayed in list boxes when the attribute becomes available for use.
5. Type a **Description** for the new attribute.
6. Select the attribute **Type**. See the *Test Attribute and Requirement Property Types* topic for descriptions of each type of attribute.
7. Click **OK**.

Test Attribute and Requirement Property Types

Silk Central supports the following types of test attributes and requirement properties:

Date The **Date** type supports date values.

List The **List** type supports single select or multi-select lists. It has the following controls:

- **New Item**: Allows you to create entries in the list. Click to show the **New Item** dialog box. Enter the **Name** and **Numeric Weight** for the list item and click **OK**.

  Note: The value of the **Numeric Weight** field is used during filtering when the filter criteria uses any of the following operators: **>**, **>=**, **<**, or **<=**. When the filter criteria uses the **=** or **not** operators, the value from the **Name** field is used for comparisons.
- **Allow multi-select**: click this check box to allow users to select more than one values from the list.

  Note: You can update an existing single-select list to be a multi-select list. A multi-select list cannot be changed to being a single-select list though.
- **Actions**: use the icons in this row to delete, to move up, to move down or to edit each item in the list.

Number The **Number** type supports integer or decimal numeric values. It has the following fields:

- **Minimum value**: represents the smallest value that you can enter into the field.
- **Maximum value**: represents the largest value that you can enter into the field.
- **Decimal places**: used to define how many values to the right of the decimal point are valid. Select `0` for an integer value or `1`, `2`, `3`, or `4` for a decimal value.

Note: Custom attributes and requirement properties display their current value if an update is made to their definition (for example, changes to **Minimum value** or **Maximum value**). In order to apply the new definition, open and save the asset.

Text The **Text** type supports any alphanumeric value. It has the following fields:

- **Maximum length**: represents the maximum number of characters that can be entered into the field.

Editing Custom Attributes

To edit a custom attribute:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Attributes** tab to view the list of current attributes.
3. Click the name of the attribute that you want to edit. The **Edit Attribute** dialog box displays.
4. Edit the **Name** of the attribute.

   When the attribute is available for use, the name will display in list boxes for filters and tests. Attributes can be used in global filters for filtering by test attributes and can be applied to tests.
5. Edit the **Description** of the attribute.
6. See the *Test Attribute and Requirement Property Types* topic for descriptions of each type of attribute. You have different editing options depending on the attribute data type.
7. Click **OK**.

   You are returned to the **Attributes** list.

Deleting Custom Attributes

To delete a custom attribute:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Attributes** tab to view the list of current attributes.
3. Before you can delete an attribute, you must first deactivate it. In the **Status** column, click the **Active** link or icon and then click **Yes** on the confirmation dialog box to deactivate the attribute.
4. Once the attribute is inactive, click **Delete Attribute** to remove it. A confirmation dialog box displays, asking you to confirm the deletion.
5. Click **Yes** to remove the selected attribute; or click **No** to abort the operation. If you click **Yes** you will be returned to the **Attributes** page, where the removed attribute is no longer displayed.
6. If an error displays, ensure that the selected attribute is not applied to any tests or used in any global filters. You can only delete unused attributes.

Attributes Page

Project:<Project Name> > **Project Settings** > **Attributes**

The **Attributes** page lists the attributes that have been created for the current project. For each attribute, the **Attributes** page displays the following columns:

Column	Description
Actions	Available actions that can be performed on the attribute.
Name	Name of the attribute. When the attribute is available for use, the name will display in list boxes for filters and tests. Attributes can be used in global filters for filtering by test attributes and can be applied to tests. Click the **Edit** icon to edit the name of the attribute.
Type	Attribute type. See the *Test Attribute and Requirement Property Types* topic for descriptions of each type of attribute.
Status	Status of the attribute, active or inactive.
Column	The column name of the attribute in the `LQM Reporting` table. Use this column name to query the selected attribute within the `LQM Reporting` table. See the database model documentation for detailed information.
Created On	When the attribute was created.
Created By	User who created the attribute.
Changed On	When the attribute was most recently modified.
Changed By	User who most recently modified the attribute.

Requirement Properties

The following sections describe the two types of requirement properties that are available.

Requirement Properties Page

Project:<Project Name> > **Project Settings** > **Requirement Properties**

The **Requirement Properties** page lists the custom requirement properties and the calculated properties that are available for the active project.

Calculated Properties

Column	Description
Actions	Available actions that can be performed on the calculated property.
Name	Name of the calculated property.
	Click the **Edit** icon to edit the calculated property.
Formula	Contains the actual formula of the calculated property.
Classification	Lists the classifications for the calculated property.
Created On	When the property was created.
Created By	User who created the property.
Changed On	When the property was most recently modified.
Changed By	User who most recently modified the property.

Custom Properties

Column	Description
Actions	Available actions that can be performed on the custom property.
Name	Name of the requirement property.
	Click the **Edit** icon to edit the requirement property.
Type	Property type. See the *Test Attribute and Requirement Property Types* topic for descriptions of each type of attribute.
Created On	When the property was created.
Created By	User who created the property.
Changed On	When the property was most recently modified.
Changed By	User who most recently modified the property.

Calculated Properties

Calculated properties are used to create a single value based on a user-defined formula derived from the values of internal or custom properties. This value is then put into a labelled range called a *classification.* The goal of a calculated property is to be able to view the classification **Name** in grids. The value of a calculated property is shown everywhere where the values of custom properties are shown (Document view, for example). Calculated properties can also be used in filters and quality goals like other internal or custom requirement properties.

Every calculated property has a default classification without a lower bound. All other classifications must have a lower bound. The classification allows you to set a name and range for the value of the calculated property. The name of the classification is how the value will display in the grids. If one or more property values used in the formula are not set, or evaluating the formula on a particular requirement fails (for example, division by zero), `---` will appear as the value of the calculated property.

You can use any internal or custom property from within a project in the formula for a calculated property. The internal or custom property must be of type `Number`, `Text`, or `List` with single selection. You can use the following operators in the formula: `+ - * / ( )`

Restriction: You can have up to five calculated properties per project. Calculated properties cannot be used within other calculated properties.

Creating a Calculated Property

Calculated properties are used to create a property that is based on a range of values. This procedure will walk you through creating a calculated property named `Custom Risk` with three classifications: `Low`, `Medium`, and `High`. We will use the internal property **Risk** and a custom property named **Impact** of type `Number` (you should create this one in advance).

1. Click **Requirements** > **Requirement Properties** .
2. Click **New Calculated Property**.
3. In the **Name** field, type `Custom Risk`.
4. In the **Description** field, type `Calculated property using Risk and Impact (L, M, H)`.
5. Select `Business Impact` from the **Insert Property** list. `${Business Impact}` is added to the **Formula** field.
6. Select * from the **Insert Operator** list. `${Business Impact}*` is added to the **Formula** field.
7. Select `Business Risk` from the **Insert Property** list. `${Business Impact}*${Business Risk}` is added to the **Formula** field.
8. On the default row of the **Classification** grid, rename the entry to `Low`. Since all calculated properties must contain a default classification without a lower bound, this one will be used.
9. Click **Add Classification**. A new row is added to the **Classification** grid.
10. Name the classification `Medium` and add a **Lower Bound** of `10`.
11. Click **Add Classification**. A new row is added to the **Classification** grid.
12. Name the classification `High` and add a **Lower Bound** of `20`.
13. Click **OK**.

A calculated property is now created that will be populated with `Low`, `Medium`, or `High` when both the **Impact** and **Risk** properties are set for a requirement.

Calculated Property Page

The **Calculated Property** page is used to add or to edit a calculated property to a project. To access this page click **Requirements** > **Requirement Properties** and then click an existing calculated property or **New Calculated Property**.

Name	Contains the name of your calculated property.
Description	Enter a meaningful description of your calculated property perhaps referencing the formula or classification.
Formula	Contains the formula for your calculated property. You can manually type in the formula or use the **Insert Property** and **Insert Operator** lists to do this. If you manually type in the formula, the field names should be contained within the following structure: `${}`. Operators go between this structure.
Insert Property	Place your cursor where you want the property to appear in the **Formula** field and select one of the system or custom properties from the list to add it.
Insert Operator	Place your cursor where you want the operator to appear in the **Formula** field and select an operator.
Classifications Grid	The **Classifications** grid is used to set varying ranges for the values of your calculated properties. Click **Add Classification** to create a new row in the grid. Use the **Name** field to identify the classification and the **Lower Bound** field to determine the lowest value for calculated property. The important thing to know about classifications is that the **Name** of the classification is what will appear in grids, not the values of calculated properties. For example if your classification **Name** is `Medium` with a **Lower Bound** of `5` and your calculated property value is 7, as long

as your next classification lower bound value is greater than `7`, the calculated value will appear as `Medium`.

Internal Property Values

The values of several internal properties can be used in the formulas for calculated properties. The values for supported properties are noted below.

Risk

Value Name	Internal Value
Low	1
Medium	2
High	3
Critical	4

Priority

Value Name	Internal Value
Low	1
Medium	2
High	3
Critical	4

Reviewed

Value Name	Internal Value
No	0
Yes	1

Custom Properties

You can add custom property fields across all requirements in the selected project in **Requirements** > **Requirement Properties**. Custom properties can subsequently be edited alongside the default properties on the **Edit Requirements** dialog box. Custom properties are displayed in **Requirements** > **Details View** > **Properties**.

Creating a Custom Requirement Property

To create a new custom requirement property:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Requirement Properties** tab.
3. Click **New Requirement Property** to display the **New Requirement Property** dialog box.
4. Type a name for the new property in the **Name** field.
5. Select the data **Type** of the new property from the **Type** list. See the *Test Attribute and Requirement Property Types* topic for descriptions of each type of attribute.

6. Click **OK**.

Your custom property is available to all requirements in the active project.

Test Attribute and Requirement Property Types

Silk Central supports the following types of test attributes and requirement properties:

Date The **Date** type supports date values.

List The **List** type supports single select or multi-select lists. It has the following controls:

- **New Item**: Allows you to create entries in the list. Click to show the **New Item** dialog box. Enter the **Name** and **Numeric Weight** for the list item and click **OK**.

  Note: The value of the **Numeric Weight** field is used during filtering when the filter criteria uses any of the following operators: **>**, **>=**, **<**, or **<=**. When the filter criteria uses the **=** or **not** operators, the value from the **Name** field is used for comparisons.
- **Allow multi-select**: click this check box to allow users to select more than one values from the list.

  Note: You can update an existing single-select list to be a multi-select list. A multi-select list cannot be changed to being a single-select list though.
- **Actions**: use the icons in this row to delete, to move up, to move down or to edit each item in the list.

Number The **Number** type supports integer or decimal numeric values. It has the following fields:

- **Minimum value**: represents the smallest value that you can enter into the field.
- **Maximum value**: represents the largest value that you can enter into the field.
- **Decimal places**: used to define how many values to the right of the decimal point are valid. Select `0` for an integer value or `1`, `2`, `3`, or `4` for a decimal value.

Note: Custom attributes and requirement properties display their current value if an update is made to their definition (for example, changes to **Minimum value** or **Maximum value**). In order to apply the new definition, open and save the asset.

Text The **Text** type supports any alphanumeric value. It has the following fields:

- **Maximum length**: represents the maximum number of characters that can be entered into the field.

Editing Custom Requirement Properties

To edit a previously created custom requirement property:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Requirement Properties** tab.
3. Click the name of the property you want to edit. The **Edit Requirement Property** dialog box displays.
4. Edit the name of the property in the **Name** field.

   When the property is available for use, the name will display in lists for filters and requirements. Properties can be used in global filters for filtering by requirement properties and can be applied to requirements.
5. Edit the **Description** of the property.
6. See the *Test Attribute and Requirement Property Types* topic for descriptions of each type of requirement property. You have different editing options depending on the property data type.

7. Click **OK** to save your changes.

Deleting Custom Requirement Properties

To delete a previously created custom requirement property:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Requirement Properties** tab.
3. Click ✕. A confirmation dialog box appears.
4. Click **Yes** to confirm the deletion.

Step Properties

Use step properties to extend a manual test step with additional properties. Add a custom step property to a project in **Projects:<Project Name>** > **Project Settings** to add the property to all manual test steps in the project. Add a custom step property to a library in the **Libraries** tree to add a custom step property to all manual test steps in the library. Step properties can subsequently be edited alongside the default properties on the **Edit Manual Test Step** dialog box.

Creating Step Properties

To create a new step property:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Step Properties** tab.
3. Click **New Property**. The **New Step Property** dialog box opens.
4. Enter a name for the new property in the **Name** text box.

   Note: Step property fields are always declared as type string.
5. Click **OK** to make your property available to all manual test steps in the selected Silk Central project.

   Note: To create a step property for a library, select the library node in the **Libraries** tree and continue with the second step.

Editing Step Properties

To edit a previously created step property

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Step Properties** tab.
3. Click on the name of the property that you want to edit. The **Edit Step Property** dialog opens.
4. Edit the name of the property in the **Name** text box.
5. Click **OK** to save your changes, or click **Cancel** to abort the operation without saving.

Deleting Step Properties

To delete a previously created step property

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Step Properties** tab.
3. Click **Delete Property** in the **Actions** column of the property that you want to delete. A confirmation dialog box displays, asking you to confirm the deletion.
4. Click **Yes** to complete the operation, or **No** to abort.

Step Properties Page

Project:<Project Name> > **Project Settings** > **Step Properties**

The **Step Properties** page lists all properties that can be populated into manual test steps across the active project. For each custom step property, the **Step Properties** page displays the following columns:

Column	Description
Name	Name of the step property.
Actions	The following actions can be performed on a property: • **Delete Property** • **Move Up** • **Move Down**

Change Notification

Silk Central can notify you by email when requirements or tests are changed by other users. Each user has the option of activating change-notification. Once notification has been enabled, you can view and acknowledge changes that have occurred since your last acknowledgment. To avoid numerous notifications, only a single email alert is sent to you when a change is made, regardless of how many changes other users may have made since your last acknowledgment. Email alerts include links that take you directly to a view of recent changes.

Before you can activate change notification for requirements or tests, you must configure your email address in the user settings of Silk Central.

Note: Change notification only works if an email server has been configured by your administrator. If change notification has not been enabled, please contact your Silk Central administrator.

Enabling Change Notification

To enable change notification:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Notifications** tab.
3. Click **Configure Email Notification** to open the **Configure Email Notification** dialog box.
4. If you want to be notified by email when changes are made to requirements in the currently selected project, check the **Changes on Requirements** check box.
5. If you want to be notified by email when changes are made to tests within the currently selected project, check the **Changes on Tests** check box.
6. Click **OK** to save the notification settings, or click **Cancel** to abort the operation without saving changes.

You will be notified by email about changes for which you have activated notification.

Disabling Change Notification

To disable change notification:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Notifications** tab.
3. Click **Configure Email Notification** to open the **Configure Email Notification** dialog box.
4. If you do not want to be notified by email when changes are made to requirements in the currently selected project, uncheck the **Changes on Requirements** check box.
5. If you do not want to be notified by email when changes are made to tests in the currently selected project, uncheck the **Changes on Tests** check box.
6. Click **OK** to save the notification settings or click **Cancel** to abort the operation without saving changes.

Changes Triggering Change Notification

When you have activated change notification to inform you of changes that are made to requirements or tests an email alert is sent to you, following your logout. The email alert is sent to you if one or more of the following settings are changed:

Area	Changes
Requirements	• A requirement is created or deleted. • The name or description of a requirement is edited. • A system property is edited. • A requirement is set as obsolete. • A requirement is recovered. • A test is assigned to or removed from a requirement. • A custom property of a requirement is created, edited, or deleted.
Tests	• A container is created or edited. • A product is edited. • A source control profile is edited. • "Clear working folder" is edited. • The root node is edited. • The custom data directory is edited. • The include directory is edited. • The hidden test properties are edited. • The Silk Test Classic interface is edited. • A test folder is created, edited, or deleted. • A test is created, edited, or deleted. • The planned time is edited. • A test step is added or edited.

Notifications Page

Project:<Project Name> > **Project Settings** > **Notifications**

The **Notifications** page lists the notification events for the active project. For each notification event, the **Notifications** page displays the following columns:

Column	Description
Notification Events	Name of the notification event that has been set up for the active project.
Status	Status of the notification event. Active or inactive.

Click the **Configure...** button in each section to edit the values.

Email

When an email notification event is activated, a notification email is sent to the user that activated the event, the first time one of the specified settings is changed.

Note: You must have specified an email address to be able to receive email notifications.

Requirement Flagging

You can configure notifications differently for internal and external requirements. All requirement flagging is enabled by default. For more information, see the *Flags* topic.

External Requirements Management Tools

This section explains how to work with external requirements management tools.

Important: Before upgrading from Silk Central 15.0 or earlier to the current version, perform a **Synchronize All** to synchronize all your requirements with your integrated requirements management tools.

Requirements Management Configuration

Integrating external requirements-management enables you to coordinate the requirements-management features of Silk Central with other tools you may already be working with. Integration is configured on the **Requirements Management** page in **Project:<Project Name>** > **Project Settings**. The page is divided into a separate section for each installed plug-in. Initially, the view is divided into sections, one for each pre-installed requirements-management tool.

For information on the supported versions, refer to the *Silk Central Release Notes*. You can download add-ins for IBM Rational RequisitePro and IBM Rational DOORS from the **Tools** unit in **Help**. These add-ins can be installed on appropriate server and client computers. For details, refer to the `ReadMe` files that are included in the downloadable archives.

Silk Central supports integration with external requirements-management systems (RMS) through its open interface. Creating a plug-in and integrating it into Silk Central allows integrating any RMS. Refer to the *Silk Central API Help* for information about the interfaces that enable proper integration of external RMS.

Before you can configure Caliber integration, you must install the Caliber client on the Silk Central application server and on the front-end server. Additionally, make sure that MPX support is enabled in Caliber.

Before you can configure RequisitePro integration, you must install the IBM Rational RequisitePro client on the Silk Central front-end server.

Before you can configure DOORS integration, you must install the DOORS client on the Silk Central front-end server.

- The add-in for RequisitePro enhances the RequisitePro menu with an entry providing a link to the Silk Central front-end server's project selection.
- The Add-In for DOORS enables Silk Central to communicate with DOORS. This add-in must be installed on the DOORS client on the Silk Central front-end server.

Note: Configuring integration with Caliber requires the definition of Caliber login credentials. Whenever requirements are synchronized between Silk Central and Caliber, these credentials are used to login to Silk Central, thus checking out a Silk Central license. The license is set free as soon as the synchronization process has completed. We recommend creating a dedicated Silk Central user for synchronization purposes, which should be used by all Silk Central requirements integrations. This ensures that only a single Caliber license is used for the process of synchronization.

Requirements Management Page

Project:<Project Name> > **Project Settings** > **Requirements Management**

The **Requirements Management** page lists the requirements-management integrations that have been configured for the current project.

Note: If an integration has not been enabled, you will only see the **Status** property.

Caliber Integration

This section lists details related to the integration of the Caliber requirements management system.

Item	Description
Status	Status of integration, enabled or disabled.
Hostname	Machine where the external server is installed.
Username	Credential for the requirements management server.
Project Name	External project with which the Silk Central project is integrated.
Baseline	Baseline of the external project with which the Silk Central project is integrated.
Requirement Types	Requirement types within the project that are integrated.
Schedule	Schedule to automatically synchronize requirements with Caliber.
Create Requirements	Indicates whether or not the **Enable creation of unassigned requirements** option is active. Enables creation and editing of unmapped requirements in Silk Central projects that are configured for integration with Caliber.
Upload Requirements	Indicates whether or not the **Enable upload of requirements to CaliberRM** option is active. Enables the upload of unmapped or unassigned requirements from Silk Central to Caliber. This allows you to upload additional previously unmapped requirement trees to Caliber and then have those requirements mapped within Silk Central. When this option is enabled, the **Map Requirement** button in **Requirements** > **Properties** becomes enabled, enabling configuration of top level requirements for external requirement types, which is required when uploading unmapped requirements.
Property Mappings	Lists any external to internal property mappings that have been defined between the internal and external requirements management systems.
Actions	• **Edit Configuration** • **Edit Property Mapping** • **Edit Schedule** • **Edit Notification** • **Disable Configuration** • **Remove Configuration**

CaliberRDM

This section lists details related to the integration of the CaliberRDM requirements management system.

Item	Description
Status	Status of integration, enabled or disabled.
Hostname	Machine where the external server is installed.
Port	Listening port of the external server.
Username	Credential for the requirements management server.
Password	Credential for the requirements management server.
Project Name	External project with which the Silk Central project is synchronized.
Schedule	Schedule to automatically synchronize requirements with the tool.
Create Requirements	Indicates whether or not the **Enable creation of unassigned requirements** option is active. Enables creation and editing of unmapped requirements in Silk Central projects that are configured for integration with the tool.
Actions	• **Edit Configuration** • **Edit Schedule** • **Edit Notification** • **Disable Configuration** • **Remove Configuration**

IBM Rational RequisitePro Integration

This section lists details related to the integration of the IBM Rational RequisitePro requirements management system.

Item	Description
Status	Status of integration, enabled or disabled.
UNC Project Path	Machine where the external server is installed.
UNC Username	Credential for the UNC file-path, which is required for the integration with IBM Rational RequisitePro.
UNC Password	Credential for the UNC file-path, which is required for the integration with IBM Rational RequisitePro.
User name	Credential for the requirements management server.
Password	Credential for the requirements management server.
Packages	The requirement packages from the external project that are integrated with the Silk Central project.
Requirement Types	Requirement types within the packages that are integrated.
Create Requirements	Indicates whether or not the **Enable creation of unassigned requirements** option is active. Enables creation and editing of unmapped requirements in Silk Central projects that are configured for integration with IBM Rational RequisitePro.
Upload Requirements	Indicates whether or not the **Enable upload of requirements to RequisitePro** option is active. Enables the upload of unmapped/unassigned requirements from Silk Central to RequisitePro. This allows you to upload additional previously unmapped requirement trees to RequisitePro and then have those requirements mapped within Silk Central. When this option is enabled, the **Map Requirement** button in **Requirements** > **Properties** becomes enabled, enabling configuration of top level requirements for external requirement types, which is required when uploading unmapped requirements.

Item	Description
Property Mappings	Lists any external to internal property mappings that have been defined between the internal and external requirements management systems.
Actions	• **Edit Configuration** • **Edit Property Mapping** • **Edit Schedule** • **Edit Notification** • **Disable Configuration** • **Remove Configuration**

SAP Solution Manager

This section lists details related to the integration of the SAP Solution Manager requirements management system.

Item	Description
Status	Status of integration, enabled or disabled.
URL	SAP Solution Manager URL.
Username	Credential for the requirements management server.
Password	Credential for the requirements management server.
Project Name	External project with which the Silk Central project is synchronized.
Schedule	Schedule to automatically synchronize requirements with the tool.
Create Requirements	Indicates whether or not the **Enable creation of unassigned requirements** option is active. Enables creation and editing of unmapped requirements in Silk Central projects that are configured for integration with the tool.
Actions	• **Edit Configuration** • **Edit Schedule** • **Edit Notification** • **Disable Configuration** • **Remove Configuration**

Rally

This section lists details related to the integration of the Rally requirements management system.

Item	Description
Status	Status of integration, enabled or disabled.
URL	URL of Rally.
Username	Credential for the requirements management server.
Password	Credential for the requirements management server.
Project Name	External project with which the Silk Central project is synchronized.
Schedule	Schedule to automatically synchronize requirements with the tool.
Create Requirements	Indicates whether or not the **Enable creation of unassigned requirements** option is active. Enables creation and editing of unmapped requirements in Silk Central projects that are configured for integration with the tool.

Item	Description
Actions	• **Edit Configuration** • **Edit Schedule** • **Edit Notification** • **Disable Configuration** • **Remove Configuration**

IBM Rational DOORS Integration

This section lists details related to the integration of the DOORS requirements management system.

Item	Description
Status	Status of integration, enabled or disabled.
RM Service URL	The URL of Silk Central's DOORS requirement Web Service. The default value should point to the correct location already.
Username	Credential for the requirements management server.
Password	Credential for the requirements management server.
DOORS Installation Path	Client installation path within the front-end server directory structure.
Project Name	External project with which the Silk Central project is synchronized.
Requirement Types	Requirement types within the project that are synchronized.
Schedule	Any defined synchronization schedule.
Create Requirements	Indicates whether or not the **Enable creation of unassigned requirements** option is active. Enables creation and editing of unmapped requirements in Silk Central projects that are configured for integration with DOORS.
Upload Requirements	Indicates whether or not the **Enable upload of requirements to IBM Rational DOORS** option is active. Enables the upload of unmapped or unassigned requirements from Silk Central to DOORS. This allows you to upload additional previously unmapped requirement trees to DOORS and then have those requirements mapped within Silk Central. When this option is enabled, the **Map Requirement** button in **Requirements** > **Properties** becomes enabled, enabling configuration of top level requirements for external requirement types, which is required when uploading unmapped requirements.
Property Mappings	Lists any external to internal property mappings that have been defined between the internal and external requirements management systems.
Actions	• **Edit Configuration** • **Edit Property Mapping** • **Edit Schedule** • **Edit Notification** • **Disable Configuration** • **Remove Configuration**

Caliber Integration

This section describes how to integrate Caliber with Silk Central.

Note: Caliber user defined attribute **Multiple selection user list** and **Multiple selection group list** must be mapped to the Silk Central text attribute type and not list type.

Enabling Integration with Caliber

To enable integration with Caliber:

1. In the menu, click **Projects** > **Project List**.
2. Select the project to which you want to establish integration.
3. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
4. Click the **Requirements Management** tab.
5. Click **New Integration**.

   Note: To enable creation and editing of unmapped requirements within the integrated requirements, check the **Allow internal requirements** check box.

   The **New Integration** dialog box opens.
6. Select **Caliber** from the list and click **Next**. The **Edit Configuration** dialog box opens.
7. Type a **Name** for the new profile.

   This is the name that is displayed in lists where the profiles are available for selection.
8. Type the **Hostname** of the machine where the external server is installed.
9. Type valid **Username** and **Password** credentials for the requirements management server.
10. Click **Test Connection** to confirm that the host and user credentials you have entered are correct.

    A **Connection successful** message box displays if the settings are correct. Click **OK** to continue.

    Note: Consult your system administrator if you are not able to establish a connection.
11. Click **OK**.
12. From the **Project** list box, select the external project with which the Silk Central project is to be integrated. The requirement types that are available with the selected project are automatically populated into the **Requirement Types** field. The baselines that are available with the selected project are automatically populated into the **Baseline** field.
13. Select a **Baseline** from the external project that should be integrated with the Silk Central project.

    Your selections are displayed on the **Edit Configuration** dialog box.
14. Click **OK**.
15. Select one or more requirement types from the external project that should be integrated with the Silk Central project.

    Use `CTRL + Click` to select multiple requirement types.
16. Click **OK** to save your settings.

Baseline Support for Caliber Integration

You can select the current baseline or existing user-defined baselines for Caliber integration. You cannot import modified baselined requirements into Silk Central. Requirements that are not of the current baseline can only be changed in Caliber if the version of the requirement that is used for the baseline is changed. Such changes are only updated within Silk Central requirements when a manual or scheduled synchronization is performed.

You can change a baseline after you import it into Silk Central. You can change the configured baseline to a different user-defined baseline or the current baseline. After such a change, the next synchronization of the baseline, either manual or scheduled, will update the Silk Central project and update, create, or delete requirements as required. When a baseline is changed, a message displays that states that the changes will take effect after the next synchronization.

Handling Test Assignments in Caliber

Assigned tests are displayed, managed, and created as traces (“Trace to”) of synchronized requirements in Caliber.

The External Traceability for Silk Central must be enabled for a Caliber project within the Caliber Administrator and the correct Silk Central front-end server must be configured. Click **Edit** for the Silk Central External Traceability for correct project within the Caliber Administrator.

When a project is synchronized with a Silk Central project, the assigned tests of the synchronized Silk Central requirements will display as traces ("Trace To") of the Caliber requirement. If you edit these assignments in Silk Central, the changes will be reflected immediately in Caliber.

Copying Caliber-Integrated Projects

To manage Caliber baselines when copying Silk Central projects:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Requirements Management** tab.
3. Verify that the baseline you want to save is selected.

   Note: If a baseline is changed, you must perform a synchronization to update the project requirements with the baseline changes, before you can copy an associated Silk Central project. The integration configuration is only copied if you select a baseline other than the current baseline. If you select the current baseline, you need to specify if you want to keep the integration configuration in the original project or move it to the copied project.
4. If the baseline that you want to save is not selected, click **Edit Configuration**. The **Edit Configuration** dialog box displays.
5. Click **Browse** next to the **Project name** text box. The **Browse Projects** dialog box opens.
6. Select the baseline you want to save, then confirm your selection.
7. In the menu, click **Projects** > **Project List** . The **Projects** page displays, listing all existing projects and project baselines.
8. Click in the **Actions** column of the project you want to copy.

   Note: For full details on copying a project, see the *Administration* topics in this Help.

   The **Copy Project** dialog box displays.
9. Select the items you want to copy into the new project, then confirm your selection.
10. Apply the baseline that you want to continue working with to the Silk Central project.

    Note: After copying a project, the original project and the copy are identical. Define on which you will continue working on by applying the corresponding baseline.

Creating a Baseline for a Caliber-Integrated Project

To create a baseline of a Caliber-integrated Silk Central project:

1. Create a baseline of the Silk Central project. A Silk Central message box displays during the process, asking if you want to enable the Caliber integration for the new baseline.
2. Click **Yes**. When the new baseline is created, the **Baseline Project - Adapt Project Settings** dialog box opens.
3. Click **Edit** to change the requirements integration settings.

   The **Edit Configuration** dialog box opens.
4. Click **Browse** next to the **Project name** text box. The **Browse Projects** dialog box opens.

5. Select a Caliber project, a baseline, and the requirement type for synchronization.
6. Click **Ok** to close the **Browse Projects** dialog box.
7. Click **Ok** to close the **Edit Configuration** dialog box.
8. Click **Finish** to close the **Baseline Project - Adapt Project Settings** dialog box.

Atlassian JIRA Agile Integration

Silk Central offers a requirements integration with Atlassian JIRA Agile, which is based on the project and issue tracking system JIRA. All issue types (the generic object type in JIRA) can be synchronized. Since Atlassian JIRA Agile offers the creation of custom issue types, you can specify a list of Atlassian JIRA Agile issue types in Silk Central that you want to synchronize, such as for example `Bug` or `Improvement`.

Enabling Integration with Atlassian JIRA Agile

To enable integration with Atlassian JIRA Agile:

1. In the menu, click **Projects** > **Project List**.
2. Select the project to which you want to establish integration.
3. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
4. Click the **Requirements Management** tab.
5. Click **New Integration**.

   Note: To enable creation and editing of unmapped requirements within the integrated requirements, check the **Allow internal requirements** check box.

   The **New Integration** dialog box opens.
6. Select **Atlassian JIRA Agile** from the list and click **Next**. The **Edit Configuration** dialog box opens.
7. Type a **Name** for the new profile.

   This is the name that is displayed in lists where the profiles are available for selection.
8. Enter the **URL** of your JIRA Agile server.
9. Type valid **Username** and **Password** credentials for JIRA Agile.
10. In the **Issue Types** field, specify the issue types that you want to synchronize, separated by semicolons (;).

    All issue types (the generic object type in JIRA) can be synchronized. Since Atlassian JIRA Agile offers the creation of custom issue types, you can specify a list of Atlassian JIRA Agile issue types in Silk Central that you want to synchronize, such as for example `Bug` or `Improvement`.
11. Click **Test Connection** to confirm that the host and user credentials you have entered are correct.

    A **Connection successful** message box displays if the settings are correct. Click **OK** to continue.

    Note: Consult your system administrator if you are not able to establish a connection.
12. Click **Load**. The **Project** list is populated with all the projects in JIRA Agile that you have permissions for.
13. From the **Project** list, select the external project with which the Silk Central project is to be integrated.
14. Click **OK** to save your settings.

Atlassian JIRA Agile Property Mappings

The following properties have a default mapping between JIRA Agile and Silk Central:

- User stories that are in JIRA Agile's `Backlog` are reflected in Silk Central by having the `Sprint` property value set to `Backlog`. This enables you to easily search for them by creating a filter.

- The default `Priority` values of JIRA Agile's user stories are mapped to Silk Central's `Priority` property. If you are not using JIRA Agile's default `Priority` values, you can customize this mapping.

Viewing JIRA Agile Backlog Stories in Silk Central

1. In the menu, click **Requirements** > **Details View**.
2. Create a new filter with the following criteria:
   - **Selection Criteria**: `External Custom Attributes`
   - **Property**: `Sprint`
   - **Value**: `Backlog`
3. Click **Apply** to apply the filter immediately or **Save and apply** to save the filter for future reuse.

Mapping JIRA Agile Priority values to Silk Central's Priority

The default `Priority` values of JIRA Agile's user stories are mapped to Silk Central's `Priority` property as follows:

- Blocker=SC_Priority_Critical
- Critical=SC_Priority_High
- Major=SC_Priority_Medium
- Minor=SC_Priority_Low
- Trivial=SC_Priority_Low

If you are not using JIRA Agile's default `Priority` values, or if you want to customize the mapping, your Silk Central administrator should customize the settings as follows:

1. Stop the application server.
2. Open the file `propertyMappings.properties` with a text editor. This file is located in the JIRA Agile plugin-file `JIRAAgile.zip` on the application server in the `plugins` folder.
3. Search for `SC_Priority=Priority`, beneath which you can customize the mapping of JIRA Agile's `Priority` values to Silk Central's `Priority`.

   Note: Silk Central `Priority` values require the prefix `SC_Priority_`.
4. Save and close the file
5. Re-start the application server.

IBM Rational DOORS Integration

This section describes how to integrate Silk Central and IBM Rational® DOORS® (DOORS).

Installing IBM Rational DOORS on the Front-End Server

To integrate Silk Central and DOORS, install the DOORS client on the Silk Central front-end server machine. If you use more than one front-end server machine, you must install the DOORS client to the same directory on each of the machines.

To install the DOORS client on the Silk Central front-end server machine:

1. In the menu, click **Help** > **Tools** .
2. Click **Silk Central Add-In for IBM Rational DOORS** to download the DOORS plug-in package.
   The package contains two ZIP-Archives:
   - `DoorsRM.zip`
   - `DoorsClientLibs.zip`
3. Create a new folder with the name `testmanager` in the …`\lib\dxl` folder of your DOORS client installation.

The default path for this folder is `C:\Program Files (x86)\IBM\Rational\DOORS\<version>`.

4. Extract all DOORS script files from `DoorsClientLibs.zip` to this folder.

The plug-in package `DoorsRMPlugin.zip` is automatically installed to the `Plugins` folder of your Silk Central application server installation during the setup process. During startup of the application server, this plug-in will be published to all front-end servers.

Enabling Integration with IBM Rational DOORS

To enable integration with DOORS:

1. In the menu, click **Projects** > **Project List**.
2. Select the project to which you want to establish integration.
3. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
4. Click the **Requirements Management** tab.
5. Click **New Integration**.

   Note: To enable creation and editing of unmapped requirements within the integrated requirements, check the **Allow internal requirements** check box.

   The **New Integration** dialog box opens.
6. Select **IBM Rational DOORS** from the list and click **Next**. The **Edit Configuration** dialog box opens.
7. Type a **Name** for the new profile.

   This is the name that is displayed in lists where the profiles are available for selection.
8. In the **RM service URL** text box, type the URL of the Silk Central DOORS requirement Web Service.

   The default value should point to the correct location already. For example `http://MySCTMHost:19120/services/doorsrequirementsmanagement`.
9. Type valid **Username** and **Password** credentials for the requirements management server.
10. The default DOORS client installation path is displayed in the **DOORS Installation Path** text box. If this path is not correct, click **Browse** to browse to and select the correct destination in the front-end server directory structure.
11. Click **Test Connection** to confirm that the host and user credentials you have entered are correct.

    A **Connection successful** message box displays if the settings are correct. Click **OK** to continue.

    Note: Consult your system administrator if you are not able to establish a connection.
12. Click **Browse** next to the **Project name** text box to open the **Browse Requirement Types** dialog box. From the **Project** text box, select the external project with which the Silk Central project is to be synchronized.

    The requirement types that are available with the selected project are automatically populated into the **Requirement types** text box. Select the requirement types that are to be synchronized and click **OK**. Use `CTRL` + `CLICK` to select multiple requirement types.

    Your selections are now displayed on the **Edit Configuration** dialog box.
13. Click **OK** to save your settings.

    Caution: As the DOORS application object is used for communication, and this object does not support login data, but rather requires a running DOORS client, Silk Central starts each DOORS client process with the provided login data and then uses that same data for all subsequent application objects. Therefore only one set of DOORS login credentials is supported for communication at one time. It is recommended that you use the same DOORS credentials for all configurations so that integration tasks can be performed on the front-end server for all projects at

the same time. When a second set of credentials is used, the second set only works after all sessions using of the first set of credentials have timed out.

IBM Rational RequisitePro Integration

The topics in this section describe the integration between IBM Rational RequisitePro and Silk Central.

Enabling Integration with IBM Rational RequisitePro

Note: You can only configure one IBM Rational RequisitePro integration per project.

To enable integration with IBM Rational RequisitePro:

1. In the menu, click **Projects** > **Project List**.
2. Select the project to which you want to establish integration.
3. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
4. Click the **Requirements Management** tab.
5. Click **New Integration**.

   Note: To enable creation and editing of unmapped requirements within the integrated requirements, check the **Allow internal requirements** check box.

   The **New Integration** dialog box opens.
6. Select **IBM Rational RequisitePro** from the list and click **Next**. The **Edit Configuration** dialog box opens.
7. Type a **Name** for the new profile.

   This is the name that is displayed in lists where the profiles are available for selection.
8. Type the **Project path (UNC)** to the machine where the external server is installed.
9. Type valid **UNC username** and **UNC password** credentials for the machine where the external server is installed.
10. Type valid **Username** and **Password** credentials for the requirements management server.
11. Click **Test Connection** to confirm that the host and user credentials you have entered are correct.

    A **Connection successful** message box displays if the settings are correct. Click **OK** to continue.

    Note: Consult your system administrator if you are not able to establish a connection.
12. Click **Edit Packages and Requirement Types**.

    Your selections are then displayed on the **Edit Configuration** dialog.

    Note: Only requirements of explicitly selected packages will be synchronized. Selecting a parent package does not select the child packages of the parent.

    The **Browse Packages & Requirement Types** dialog box opens. The packages and requirement types that are available with the selected project are automatically populated into the **Packages** and **Requirement Types** list boxes.
13. From the **Packages** list box, select one or more packages from the external project that should be integrated with the Silk Central project.

    Use `CTRL + CLICK` to select multiple packages.
14. From the **Requirement types** list box, select one or more requirement types from the external project that should be integrated with the Silk Central project.

    Use `CTRL + CLICK` to select multiple requirement types.

15. Click **OK**. The **Browse Packages & Requirement Types** dialog box closes.
16. Click **OK** to save your settings.

Rally Integration

Integrating the project management tool Rally enables you to define user stories which you can then use as requirements in Silk Central. You can then create tests in Silk Central to cover these requirements. To update the tests you have created with any changes to the corresponding user stories in Rally, synchronize the requirements.

The following user story properties are synchronized from the Rally REST Service. You can use these properties to help filter and categorize the user stories.:

Property	Description
Name	The name of the user story in Rally.
Rally ID	The identifier of the user story in Rally. This property is the External ID of the requirement in Silk Central.
Description	The description of the user story in Rally.
Iteration	The iteration in Rally in which the user story is included.
Project	The project in Rally in which the user story is included.
Release	The project release in which the user story is included.
State	The state of progress of the user story in Rally. The following states are available: • `Defined` • `In-Progress` • `Completed` • `Accepted`
Plan Estimate (Story Points)	The estimated time in Rally for the user story to be completed. The time is estimated in story points.

Enabling Integration with Rally

To enable integration with Rally:

1. In the menu, click **Projects** > **Project List**.
2. Select the project to which you want to establish integration.
3. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
4. Click the **Requirements Management** tab.
5. Click **New Integration**.

   Note: To enable creation and editing of unmapped requirements within the integrated requirements, check the **Allow internal requirements** check box.

   The **New Integration** dialog box opens.
6. Select **Rally** from the list and click **Next**. The **Edit Configuration** dialog box opens.
7. Type a **Name** for the new profile.

   This is the name that is displayed in lists where the profiles are available for selection.
8. Type the **URL**.
9. Type valid **Username** and **Password** credentials for Rally.

10. *Optional:* If direct access to the Internet is restricted, and the Rally REST service is located in a machine outside the scope of the internal network, use the **Proxy Host** and **Proxy Port** text boxes to specify a proxy through which Silk Central can connect to Rally .

    Note: To connect to Rally by using a proxy, you need to fill out both text boxes, **Proxy Host** and **Proxy Port**.

11. Click **Test Connection** to confirm that the host and user credentials you have entered are correct.

    A **Connection successful** message box displays if the settings are correct. Click **OK** to continue.

    Note: Consult your system administrator if you are not able to establish a connection.

12. Click **OK**.
13. Click **Load**. The **Project** list box is populated with all the projects from all workspaces in Rally that you have permissions for.
14. From the **Project** list box, select the external project with which the Silk Central project is to be integrated.
15. Click **OK** to save your settings.

Issue Tracking Profiles

Issue tracking profiles enable Silk Central to integrate with external issue tracking systems.

Additional issue tracking systems can be configured by installing a custom plug-in. For additional information, refer to the *Issue Manager API Help*. Defining issue tracking profiles allows you to link tests within the **Tests** area to issues in third-party issue-tracking systems. Linked issue states are updated periodically from the third-party issue tracking system.

Mapping Issue States

After defining a new issue tracking profile, you should map the existing issue states of the external issue tracking system to the issue states of Silk Central. Doing this enables Silk Central to list issues correctly when querying internal and external issues.

To map issue states:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.

2. Click the **Issue Tracking** tab. The **Issue Tracking** page opens, listing all of the issue tracking profiles that have been created for the system.
3. In the **Actions** column of the issue tracking profile you want to edit, click **Edit mapping of issue tracking profile ...**. The **Edit Status Mapping** dialog box opens.
4. Map internal issue states to corresponding external issue states by selecting the respective entries from the list boxes.

   The existing issue states of the external issue tracking software are listed in the **External** column. The internal issue states of Silk Central are available in the list boxes in the **Internal** column.
5. Once you have mapped each external issue state to an internal state, click **OK** to save your settings, or click **Cancel** to abort the operation.

Atlassian JIRA

This section describes how to configure Atlassian JIRA (JIRA) issue tracking profiles to integrate with Silk Central.

The JIRA plug-in relies on the Silk Central Java API for integration.

Note: See the sources of the package `com.borland.sctm.issuetracking.jira` to see how these elements fit together.

For a list of the JIRA versions that are supported for integration with Silk Central, refer to the *Silk Central Release Notes*.

If you assign an external JIRA issue to a test, you can enter the issue ID either with or without the project key. For example: `PROJECT-13` or just `13`.

Adding Atlassian JIRA Issue Tracking Profiles

Before you integrate Silk Central with JIRA, ensure that the SOAP services are enabled. For detailed information, refer to the JIRA documentation.

To add a JIRA issue tracking profile:

1. In the menu, click **Issues** > **Issue Tracking Integrations**. The **Issue Tracking** page displays, listing all issue tracking profiles that have been created for the system.
2. Click **New Profile** to open the **New Issue Tracking Profile** dialog box.
3. Type a **Name** for the new profile.
   This is the name that is displayed in lists where the profiles are available for selection.
4. Type a **Description** for the new profile.
5. Select **Atlassian JIRA** from the **Type** list.
6. Type a valid **Username** and **Password**.
   These credentials will be used to access the issue tracking system.
7. In the **URL** field, type the host name of your JIRA server and the port that is used to connect to the server.
8. Click **Load Project** to load all projects from the server and populate the **Project** list box, then select a project from the **Project** list box.
9. Optional: Select **true** from the **Show custom fields** list to display custom JIRA fields in the issue dialog. If true is selected, the JIRA user defined for the issue tracking profile has to have JIRA administration permissions.
10. Optional: If you experience performance issues on large JIRA installations, select **false** from the **Update daily issue statistics** list. The daily issue statistics will not be updated.

    Note: If you use JIRA 5 or a later JIRA version, this setting is ignored, since the performance issues are resolved for the newer versions.
11. Click **OK**.

    Silk Central attempts a trial connection to the external system using the information you have provided.

    Note: If an error occurs, please review the information that you have supplied, or consult your administrator.
12. If the trial connection is successful, a confirmation dialog box displays, asking you if you want to map internal issue states to the states of the newly defined profile.

    - Click **Yes** to proceed with the related *Mapping Issue States* procedure.
    - Click **No** to map issue states later.

Editing Atlassian JIRA Issue Tracking Profiles

When the server or login credentials of your issue tracking system change, you must edit your issue tracking profile accordingly.

To edit an existing Atlassian JIRA issue tracking profile:

1. In the menu, click **Issues** > **Issue Tracking Integrations**. The **Issue Tracking** page displays, listing all issue tracking profiles that have been created for the system.

2. Click on the name of the issue tracking profile that you want to modify. The **Edit Issue Tracking Profile** dialog box opens.
3. Edit the **Name** of the profile.

   This is the name that is displayed in lists where profiles are available for selection.
4. Edit the **Description** of the profile.
5. *Optional:* Select a new **Type** for the issue tracking profile from the list box.
6. Edit the **Username** and **Password**.

   These credentials are used to access your issue tracking system.
7. In the **URL** field, edit the hostname of your JIRA server and the port that is used to connect to the server.
8. To change the JIRA project, click **Load Project** to load all projects from the server and update the **Project** list box, then select a project from the **Project** list box.
9. Optional: Select **true** from the **Show custom fields** list to display custom JIRA fields in the issue dialog. If true is selected, the JIRA user defined for the issue tracking profile has to have JIRA administration permissions.
10. Optional: If you experience performance issues on large JIRA installations, select **false** from the **Update daily issue statistics** list. The daily issue statistics will not be updated.

    Note: If you use JIRA 5 or a later JIRA version, this setting is ignored, since the performance issues are resolved for the newer versions.
11. Click **OK**.

    Silk Central attempts a trial connection to the external system using the information you have provided.

    Note: If an error occurs, please review the information that you have supplied, or consult your administrator.
12. If the trial connection is successful, a confirmation dialog box displays, asking you if you want to map internal issue states to the states of the newly defined profile.

    - Click **Yes** to proceed with the related *Mapping Issue States* procedure.
    - Click **No** to map issue states later.

Bugzilla

This section describes how to configure Bugzilla issue tracking profiles to integrate with Silk Central.

The Bugzilla plug-in relies on the Silk Central Java API for integration. Silk Central communicates with Bugzilla through the XML-RPC Bugzilla Web-service introduced with Bugzilla 3.0 by using the Redstone XML-RPC library. To enable Bugzilla integration, ensure that you have installed a SOAP::Lite package for the web server. For example, for the Debian distribution install the `libsoap-lite-perl` package.

For a list of the Bugzilla versions that are supported for integration with Silk Central, refer to the *Silk Central Release Notes*.

Adding Bugzilla Issue Tracking Profiles

To add a Bugzilla issue tracking profile:

1. In the menu, click **Issues** > **Issue Tracking Integrations**. The **Issue Tracking** page displays, listing all issue tracking profiles that have been created for the system.
2. Click **New Profile** to open the **New Issue Tracking Profile** dialog box.
3. Type a **Name** for the new profile.

   This is the name that is displayed in lists where the profiles are available for selection.
4. Type a **Description** for the new profile.
5. Select **Bugzilla** from the **Type** list box.

6. Type a valid **Username** and **Password**.

   These credentials will be used to access the issue tracking system.
7. Enter the URL of your Bugzilla installation. For example, `http://bugzillaserver/bugzilla`.
8. Click **OK**.

   Silk Central attempts a trial connection to the external system using the information you have provided.

   Note: If an error occurs, please review the information that you have supplied, or consult your administrator.
9. If the trial connection is successful, a confirmation dialog box displays, asking you if you want to map internal issue states to the states of the newly defined profile.

   - Click **Yes** to proceed with the related *Mapping Issue States* procedure.
   - Click **No** to map issue states later.

Editing Bugzilla Issue Tracking Profiles

When the server or login credentials of your issue tracking system change, you must edit your issue tracking profile accordingly.

To edit an existing Bugzilla issue tracking profile:

1. In the menu, click **Issues** > **Issue Tracking Integrations**. The **Issue Tracking** page displays, listing all issue tracking profiles that have been created for the system.
2. Click on the name of the issue tracking profile that you want to modify. The **Edit Issue Tracking Profile** dialog box opens.
3. Edit the **Name** of the profile.

   This is the name that is displayed in lists where profiles are available for selection.
4. Edit the **Description** of the profile.
5. *Optional:* Select a new **Type** for the issue tracking profile from the list box.
6. Edit the **Username** and **Password**.

   These credentials are used to access your issue tracking system.
7. Edit the **URL** of your Bugzilla installation.
8. Click **OK**.

   Silk Central attempts a trial connection to the external system using the information you have provided.

   Note: If an error occurs, please review the information that you have supplied, or consult your administrator.
9. If the trial connection is successful, a confirmation dialog box displays, asking you if you want to map internal issue states to the states of the newly defined profile.

   - Click **Yes** to proceed with the related *Mapping Issue States* procedure.
   - Click **No** to map issue states later.

Changepoint

This section describes how to configure Changepoint issue tracking profiles.

Changepoint is an IT management and governance tool that enables organizations to maximize the business value of the entire IT portfolio including projects, applications, and infrastructure.

This integration allows you to connect Silk Central to Changepoint to store issues.

Important: The Changepoint environment must have the Changepoint API installed and the `CPWebService` configured.

Known Issues

Workflow Do not change the Changepoint workflows for requests after submitting them in Silk Central. Do not use different workflows in requests when assigning external issues. The filter criteria used in workflows should be based on fields used in the Silk Central **Issue Tracking Profile**. Otherwise, unexpected states may be assigned to requests in Silk Central.

Adding Changepoint Issue Tracking Profiles

To add a Changepoint issue tracking profile:

1. In the menu, click **Issues** > **Issue Tracking Integrations**. The **Issue Tracking** page displays, listing all issue tracking profiles that have been created for the system.
2. Click **New Profile** to open the **New Issue Tracking Profile** dialog box.
3. Type a **Name** for the new profile.

   This is the name that is displayed in lists where the profiles are available for selection.
4. Type a **Description** for the new profile.
5. Select **Compuware Changepoint** from the **Type** list box.
6. Type a valid **Username** and **Password** for the issue tracking system.

   Note: In order to select a project and to submit a new issue, the **Username** field must contain a Changepoint user who has the project's `Edit Project Plan` permission.
7. Enter the URL of your Changepoint installation in the **Changepoint Server URL** field.
8. Enter the URL of your Changepoint web service server in the **Changepoint WebService URL** field.
9. Click **Load Initiator** to load your Changepoint initiators.
10. Select an initiator from the **Initiator** list box.
11. Click **Load Client** to load your Changepoint clients.
12. Select a client from the **Client** list box.
13. Click **Load Initiative** to load your Changepoint initiatives.
14. Select an initiative from the **Initiative** list box.
15. Click **Load Project** to load your Changepoint projects.
16. Select a project from the **Project** list box.
17. Click **Load Request Type** to load your Changepoint request types.
18. Select a request type from the **Request Type** list box.
19. Click **Load Application** to load your Changepoint applications. Select an application from the **Application** list box.
20. Click **OK**.

    Silk Central attempts a trial connection to the external system using the information you have provided.

    Note: If an error occurs, please review the information that you have supplied, or consult your administrator.
21. If the trial connection is successful, a confirmation dialog box displays, asking you if you want to map internal issue states to the states of the newly defined profile.

    - Click **Yes** to proceed with the related *Mapping Issue States* procedure.
    - Click **No** to map issue states later.

Opening Changepoint Issues in Context

To open Silk Central issues in the context of the Changepoint system, you need to place a specific file in the virtual directory on the Changepoint server. To do so, follow the steps below:

1. In the menu, click **Help** > **Tools** to view the **Downloadable Client Tools** page.
2. Click the `Changepoint Request Form` link.
3. When prompted, choose to save the `ChangepointRequestForm.zip` file to disk.
4. Extract `CPRequestForm.html` from `ChangepointRequestForm.zip`.

   If you are using Changepoint 2010, the required file is in the `Changepoint 2010` folder. It is called `CPRequestForm2010.html`. Extract this file and manually rename it to `CPRequestForm.html`.
5. Manually copy `CPRequestForm.html` to the Changepoint server and placed into the virtual directory in which Changepoint is running.

Synchronizing the Time for the Changepoint and Silk Central Servers

This section describes how to ensure that the Changepoint server and Silk Central server communicate properly.

1. Open the `web.config` file located in the `../Changepoint/CP Web Services` directory.
2. Add the following key to the `security` section:

   ```
   <timeToleranceInSeconds>86400</timeToleranceInSeconds>
   ```
3. Save the file.

IBM Rational ClearQuest

This section describes how to configure IBM Rational ClearQuest issue tracking profiles to integrate with Silk Central.

IBM Rational ClearQuest products provide flexible defect/change tracking and automated workflow support. The two key products are IBM Rational ClearQuest (ClearQuest) and IBM Rational ClearQuest MultiSite (ClearQuest Multisite). To work with ClearQuest profiles, you must have the ClearQuest client software installed on the computer where the Silk Central front-end server is running. For detailed information about installing ClearQuest, refer to the ClearQuest documentation.

For a list of the ClearQuest versions that are supported for integration with Silk Central, refer to the *Silk Central Release Notes*.

Adding ClearQuest Issue Tracking Profiles

To add a ClearQuest issue tracking profile:

1. In the menu, click **Issues** > **Issue Tracking Integrations**. The **Issue Tracking** page displays, listing all issue tracking profiles that have been created for the system.
2. Click **New Profile** to open the **New Issue Tracking Profile** dialog box.
3. Type a **Name** for the new profile.

   This is the name that is displayed in lists where the profiles are available for selection.
4. Type a **Description** for the new profile.
5. Select **IBM Rational ClearQuest** from the **Type** list box.
6. Type a valid **Username** and **Password**.

   These credentials will be used to access the issue tracking system.
7. Enter the **Repository Info** of your ClearQuest installation.

   This is the database name that is defined in the ClearQuest client software. The name of the sample database is `SAMPL`.

   Note: It is not possible to use more than one ClearQuest schema repository. Silk Central will connect to the default ClearQuest repository.
8. Specify the **Record Type**, which is the issue type of ClearQuest.

When entering an issue in Silk Central, ClearQuest will save the issue with the issue type you define in this text box. The default issue type is `Defect`.

9. Click **OK**.

   Silk Central attempts a trial connection to the external system using the information you have provided.

   Note: If an error occurs, please review the information that you have supplied, or consult your administrator.

10. If the trial connection is successful, a confirmation dialog box displays, asking you if you want to map internal issue states to the states of the newly defined profile.

    - Click **Yes** to proceed with the related *Mapping Issue States* procedure.
    - Click **No** to map issue states later.

Editing ClearQuest Issue Tracking Profiles

When the server or login credentials of your issue tracking system change, you must edit your issue tracking profile accordingly.

To edit an existing ClearQuest issue tracking profile:

1. In the menu, click **Issues** > **Issue Tracking Integrations**. The **Issue Tracking** page displays, listing all issue tracking profiles that have been created for the system.
2. Click on the name of the issue tracking profile that you want to modify. The **Edit Issue Tracking Profile** dialog box opens.
3. Edit the **Name** of the profile.

   This is the name that is displayed in lists where profiles are available for selection.
4. Edit the **Description** of the profile.
5. *Optional:* Select a new **Type** for the issue tracking profile from the list box.
6. Edit the **Username** and **Password**.

   These credentials are used to access your issue tracking system.
7. Edit the **Repository Info** of your ClearQuest installation.

   This is the database name that is defined in the ClearQuest client software. The name of the sample database is `SAMPL`.

   Note: It is not possible to use more than one ClearQuest schema repository. Silk Central will connect to the default ClearQuest repository.
8. Change the **Record Type**, which is the issue type of ClearQuest.

   When entering an issue in Silk Central, ClearQuest saves the issue with the issue type you define in this field.
9. Click **OK**.

   Silk Central attempts a trial connection to the external system using the information you have provided.

   Note: If an error occurs, please review the information that you have supplied, or consult your administrator.
10. If the trial connection is successful, a confirmation dialog box displays, asking you if you want to map internal issue states to the states of the newly defined profile.

    - Click **Yes** to proceed with the related *Mapping Issue States* procedure.
    - Click **No** to map issue states later.

Issue Manager

Issue Manager, the issue-tracking tool of Silk Central, is fully integrated with Silk Central, enabling you to correlate issues with system requirements and executed tests.

Test issues can be added and managed in the menu through **Tests** > **Details View** > **Issues**. For more information, see the Issue Manager topics in this Help.

Adding Issue Manager Issue Tracking Profiles

To add an Issue Manager issue tracking profile:

1. In the menu, click **Issues** > **Issue Tracking Integrations**. The **Issue Tracking** page displays, listing all issue tracking profiles that have been created for the system.
2. Click **New Profile** to open the **New Issue Tracking Profile** dialog box.
3. Type a **Name** for the new profile.

   This is the name that is displayed in lists where the profiles are available for selection.
4. Type a **Description** for the new profile.
5. Select **Issue Manager** from the **Type** list box.
6. Type a valid **Username** and **Password**.

   These credentials will be used to access the issue tracking system.
7. Type the **Issue Manager URL** of your Issue Manager installation. This is the URL you use to login to Issue Manager, though without the `login` extension at the end.

   For example, if your standard Issue Manager URL is `http://IssueManager/login`, then the correct service URL is `http://IssueManager`.
8. *Optional:* If Issue Manager should communicate with the front-end server through a different URL than the one that users use to access the Web user interface, type this URL into the **Web Service URL** field. This is required for example when users access the Web user interface through a proxy, while Issue Manager needs the internal URL or IP address of the front-end server.
9. Proceed as follows:

   1. Click **Load Projects**. This action will populate the **Project** list box with all initialized Issue Manager projects to which the specified user has access to. Note that only those projects display for which Issue Manager user groups have been defined, and the defined user is a member of at least one user group.
   2. Select the **Project** where Issue Manager issues are maintained.

   Caution: We recommend not to use identical projects for Issue Manager and Silk Central, as this limits flexibility in working with both tools on different future projects.
10. Click **OK**.

    Silk Central attempts a trial connection to the external system using the information you have provided.

    Note: If an error occurs, please review the information that you have supplied, or consult your administrator.
11. If the trial connection is successful, a confirmation dialog box displays, asking you if you want to map internal issue states to the states of the newly defined profile.

    - Click **Yes** to proceed with the related *Mapping Issue States* procedure.
    - Click **No** to map issue states later.

Editing Issue Manager Issue Tracking Profiles

When the server or login credentials of your issue tracking system change, you must edit your issue tracking profile accordingly.

To edit an existing Issue Manager issue tracking profile:

1. In the menu, click **Issues** > **Issue Tracking Integrations**. The **Issue Tracking** page displays, listing all issue tracking profiles that have been created for the system.
2. Click on the name of the issue tracking profile that you want to modify. The **Edit Issue Tracking Profile** dialog box opens.

3. Edit the **Name** of the profile.

   This is the name that is displayed in lists where profiles are available for selection.
4. Edit the **Description** of the profile.
5. *Optional:* Select a new **Type** for the issue tracking profile from the list box.
6. Edit the **Username** and **Password**.

   These credentials are used to access your issue tracking system.
7. Edit the **Issue Manager URL** of your Issue Manager installation if the location has changed.

   This is the URL you use to login to Issue Manager, though without the `login` extension at the end. For example, if your standard Issue Manager URL is `http://IssueManager/login`, then the correct service URL would be `http://IssueManager`.
8. *Optional:* If Issue Manager should communicate with the front-end server through a different URL than the one that users use to access the Web user interface, type this URL into the **Web Service URL** field. This is required for example when users access the Web user interface through a proxy, while Issue Manager needs the internal URL or IP address of the front-end server.
9. To change the Issue Manager project, click **Load Projects** to load all projects from the server and update the **Project** list box, then select a project from the **Project** list box.
10. Click **OK**.

    Silk Central attempts a trial connection to the external system using the information you have provided.

    Note: If an error occurs, please review the information that you have supplied, or consult your administrator.
11. If the trial connection is successful, a confirmation dialog box displays, asking you if you want to map internal issue states to the states of the newly defined profile.

    - Click **Yes** to proceed with the related *Mapping Issue States* procedure.
    - Click **No** to map issue states later.

StarTeam Issue Tracking Profiles

This section describes how to configure StarTeam issue tracking profiles to integrate with Silk Central.

StarTeam is a software change management and configuration management tool that enables coordination and management of the software delivery process.

To work with StarTeam profiles and use the go-to-link functionality for change requests in StarTeam, you must have the StarTeam Cross-Platform Client software installed on the computer where the browser is running.

For a list of the StarTeam versions that are supported for integration with Silk Central, refer to the *Silk Central Release Notes*.

Adding StarTeam Issue Tracking Profiles

To add a StarTeam issue tracking profile:

1. In the menu, click **Issues** > **Issue Tracking Integrations**. The **Issue Tracking** page displays, listing all issue tracking profiles that have been created for the system.
2. Click **New Profile** to open the **New Issue Tracking Profile** dialog box.
3. Edit the **Name** of the profile.

   This is the name that is displayed in lists where profiles are available for selection.
4. Type a **Description** for the new profile.
5. Select **StarTeam** from the **Type** list box
6. Type a valid **Username** and **Password**.

   These credentials will be used to access the issue tracking system.

7. Type the **Hostname** of your StarTeam server and the **Port** that is used to connect to the server. If this setting has not been changed, use the default port `49201`.
8. Specify the type of **Encryption** that the profile supports.
9. Click **Load Project** to load all projects from the server and populate the **Project** list box, then select a project from the **Project** list box.
10. Click **Load View** to load all views for the selected project and populate the **View** list box, then select a view from the **View** list box.
11. Click **Load Status Field** to load all enumeration fields for change requests and populate the **Status Field** list box, then select a status field from the **Status Field** list box.

    If you are using a custom workflow in StarTeam, this field is the workflow driver field in StarTeam that maps to the Silk Central issue state.
12. Select a type of link from the **Link Type** list box.

starteam://	**External ID** links on the **Issues** tab will open the cross platform client.
http://	**External ID** links on the **Issues** tab will open the issue in the StarTeam web UI.
13. If you selected `http://` in the **Link Type** list box, enter the web server address of the StarTeam web UI in the **WebServer** field.
14. Select `Yes` or `No` in the **Workflow** field. Select `Yes` to show the required fields that are specified in the workflow of the selected **View**.
15. Click **OK**.

    Silk Central attempts a trial connection to the external system using the information you have provided.

    Note: If an error occurs, please review the information that you have supplied, or consult your administrator.
16. If the trial connection is successful, a confirmation dialog box displays, asking you if you want to map internal issue states to the states of the newly defined profile.
    - Click **Yes** to proceed with the related *Mapping Issue States* procedure.
    - Click **No** to map issue states later.

Editing StarTeam Issue Tracking Profiles

When the server or login credentials of your issue tracking system change, you must edit your issue tracking profile accordingly.

To edit an existing StarTeam issue tracking profile:

1. In the menu, click **Issues** > **Issue Tracking Integrations**. The **Issue Tracking** page displays, listing all issue tracking profiles that have been created for the system.
2. Click on the name of the issue tracking profile that you want to modify. The **Edit Issue Tracking Profile** dialog box opens.
3. Edit the **Name** of the profile.

   This is the name that is displayed in lists where profiles are available for selection.
4. Edit the **Description** of the profile.
5. *Optional:* Select a new **Type** for the issue tracking profile from the list box.
6. Edit the **Username** and **Password**.

   These credentials are used to access your issue tracking system.
7. Edit the **Hostname** of your StarTeam server and the **Port** that is used to connect to the server.
8. Modify the type of **Encryption** that the profile supports.
9. To change the StarTeam project, click **Load Project** to load all projects from the server and update the **Project** list box, then select a project from the **Project** list box.

10. To change the view, click **Load View** to load all views for the selected project and populate the **View** list box, then select a view from the **View** list box.
11. To change the workflow driver field, click **Load Status Field** to load all enumeration fields for change requests and populate the **Status Field** list box, then select a status field from the **Status Field** list box.

    If you are using a custom workflow in StarTeam, this field is the workflow driver field in StarTeam that maps to the Silk Central issue state.
12. Select a type of link from the **Link Type** list box.

starteam://	**External ID** links on the **Issues** tab will open the cross platform client.
http://	**External ID** links on the **Issues** tab will open the issue in the StarTeam web UI.
13. If you selected `http://` in the **Link Type** list box, enter the web server address of the StarTeam web UI in the **WebServer** field.
14. Select `Yes` or `No` in the **Workflow** field. Select `Yes` to show the required fields that are specified in the workflow of the selected **View**.
15. Click **OK**.

    Silk Central attempts a trial connection to the external system using the information you have provided.

    Note: If an error occurs, please review the information that you have supplied, or consult your administrator.
16. If the trial connection is successful, a confirmation dialog box displays, asking you if you want to map internal issue states to the states of the newly defined profile.
    - Click **Yes** to proceed with the related *Mapping Issue States* procedure.
    - Click **No** to map issue states later.

Team Foundation Server

This section describes how to configure Team Foundation Server (TFS) issue tracking profiles to integrate with Silk Central.

TFS versions that are currently supported for integration with Silk Central: Team Foundation Server 2010, 2012, 2013

Installing a Team Foundation Server Web Service Proxy

To communicate with a TFS, you need to install a Team Foundation Server Web Service Proxy as an interface to the TFS.

To install a TFS proxy service:

1. Install Microsoft Visual Studio Team Explorer from *http://www.microsoft.com/downloads/details.aspx?FamilyID=fe4f9904-0480-4c9d-a264-02fedd78ab38*.
2. Install IIS and the Web Deployment Tool, for example with the Web Platform Installer from *http://www.microsoft.com/web/downloads/default.aspx*.
3. Download the Team Foundation Server Web Service Proxy from **Help** > **Tools**.
4. Unzip the downloaded package.
5. Open a command shell and type `DotNetTfsWebServiceProxy.deploy.cmd /Y` to install the proxy service. If an error message box displays, stating that ASP.NET 4 is required, refer to *http://msdn.microsoft.com/en-us/library/k6h9cz8h.aspx*.
6. Open the IIS Manager.
7. Verify that the new website exists.
8. In the root folder of the virtual directory, open the `Web.config` file.
9. In the *appSettings* section of the file, modify the value of the key *WorkItemTrackingCacheRoot* to a local directory.

For example:

```
<appSettings>
  <add key="WorkItemTrackingCacheRoot" value="C:\temp" />
</appSettings>
```

10. If the directory you have specified does not exist, create it.
11. Grant **Everyone** full rights on the specified directory.

For additional information on deploying an ASP.NET Web Application, refer to *http://msdn.microsoft.com/en-us/library/ee942158.aspx*.

Adding TFS Issue Tracking Profiles

You need to configure a Team Foundation Server Web Service Proxy, which is provided by Micro Focus to enable Silk Central to access TFS issues.

Important: This is not the Team Foundation Server Proxy provided by Microsoft.

To add a TFS issue tracking profile:

1. In the menu, click **Issues** > **Issue Tracking Integrations**. The **Issue Tracking** page displays, listing all issue tracking profiles that have been created for the system.
2. Click **New Profile** to open the **New Issue Tracking Profile** dialog box.
3. Type a **Name** for the new profile.

   This is the name that is displayed in lists where the profiles are available for selection.
4. Type a **Description** for the new profile.
5. Select **Team Foundation Server <version>** from the **Type** list box.
6. Type a valid **Username** and **Password**.

   These credentials will be used to access the issue tracking system.
7. Type the **Domain** of the TFS user.
8. Enter the URL of your TFS installation.

   For example, `http://tfsserver:8080/tfs`.
9. Type the **Collection** to which your project belongs.

   For example `DefaultCollection`.

   All projects in the collection are listed in the **Projects** list box.
10. Select the **Project** from the list box.
11. Type the URL of your TFS proxy. For example `http://tfsproxyserver/DotNetTfsWebServiceProxy_deploy/TfsWebServiceProxy.asmx`.
12. Click **Load Work Item Type**. The **Work Item Type** list box is populated with the available work item types.
13. Select the **Work Item Type** from the list box.
14. Click **Load Initial State**. The **Initial State** list box is populated with the states that are allowed for the selected work item type.
15. Click **OK**.

    Silk Central attempts a trial connection to the external system using the information you have provided.

    Note: If an error occurs, please review the information that you have supplied, or consult your administrator.
16. If the trial connection is successful, a confirmation dialog box displays, asking you if you want to map internal issue states to the states of the newly defined profile.

    - Click **Yes** to proceed with the related *Mapping Issue States* procedure.

- Click **No** to map issue states later.

Editing TFS Issue Tracking Profiles

When the server or login credentials of your issue tracking system change, you must edit your issue tracking profile accordingly.

To edit an existing TFS issue tracking profile:

1. In the menu, click **Issues** > **Issue Tracking Integrations**. The **Issue Tracking** page displays, listing all issue tracking profiles that have been created for the system.
2. Click on the name of the issue tracking profile that you want to modify. The **Edit Issue Tracking Profile** dialog box opens.
3. Edit the **Name** of the profile.

   This is the name that is displayed in lists where profiles are available for selection.
4. Edit the **Description** of the profile.
5. *Optional:* Select a new **Type** for the issue tracking profile from the list box.
6. Edit the **Username** and **Password**.

   These credentials are used to access your issue tracking system.
7. Edit the **Domain** of the TFS user.
8. Edit the **URL** and **Collection** of your TFS installation.
9. Select a different **Project**.
10. Edit the URL and port of your TFS proxy.
11. Click **OK**.

    Silk Central attempts a trial connection to the external system using the information you have provided.

    Note: If an error occurs, please review the information that you have supplied, or consult your administrator.

Deleting Issue Tracking Profiles

To delete an issue tracking profile:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Issue Tracking** tab. The **Issue Tracking** page opens, listing all of the issue tracking profiles that have been created for the system.
3. In the **Actions** column of the issue tracking profile you wish to delete, click **Delete issue tracking profile ...**. A confirmation dialog box displays.
4. Click **Yes**.

Issue Tracking Profiles Page

Project:<Project Name> > **Project Settings** > **Issue Tracking**

Use this page to configure profiles for the integration of external issue tracking systems into Silk Central. Click **New Profile** to create a new issue tracking profile. For each issue tracking profile, the page displays the following columns:

Column	Description
Name	The name of the profile as it displays in the Silk Central GUI and in reports. Click the name to edit a profile.

Column	Description
Type	The external issue tracking system.
Login	The login name with which Silk Central connects to the issue tracking system.
Repository Info	The physical location of the issue tracking system. Hostname or URL.
Created On	Date when the issue tracking profile was created.
Created By	The user who created the issue tracking profile.
Actions	The following actions can be performed on an issue tracking profile: • **Delete issue tracking profile** • **Edit mapping of issue tracking profile**

Source Control Profiles

Describes how to integrate Silk Central with external source control systems.

Source control profiles enable Silk Central to integrate with external source control systems. Defining source control profiles allows you to define where Silk Central's execution servers should retrieve program sources for test execution.

You need double the amount of free disk space on the execution server to accommodate the source files because Silk Central checks out the source control tree and then generates a working directory with the executable source files.

Additional source control systems can be configured by installing a custom plug-in. For detailed information, refer to the *Silk Central API Help*.

The following source control systems are currently supported by Silk Central "out of the box":

Apache Commons Virtual File System

This section describes how to configure Virtual File System (VFS) source control profiles.

A VFS is an abstraction layer on top of a more concrete file system. The purpose of a VFS is to allow client applications to access different types of concrete file systems in a uniform way. Apache Commons VFS provides a single API for accessing various file systems. It presents a uniform view of the files from various sources. The protocols that are currently supported for VFS by Silk Central are:

Protocol	Description
http	Copies the given file. This protocol type is also supported for copying and unpacking ZIP, JAR, or other zipped files. It is required to specify a .zip file on a http server. For example, `zip:http://myTestServer/myTests.zip`. The .zip file will be extracted on the execution server.
ftp	Copies the given file. This protocol type is also supported for copying and unpacking ZIP, JAR, or other zipped files.
smb	Server Message Block (smb) copies all files and folders. This protocol can be used instead of a UNC profile. For example, the VFS smb path `smb://server-name/shared-resource-path` is equivalent to the UNC path `\\server-name\shared-resource-path`.

Note: When you create a new ProcessExecutor test that uses VFS for source control, you need to specify the complete path to the executable in the **Executable Name** text box.

Adding VFS Source Control Profiles

To create a VFS source control profile:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Source Control** tab. The **Source Control** page opens, listing all of the source control profiles that have been created for the system.
3. Click **New Profile** to open the **New Source Control Profile** dialog box.
4. Type a **Name** for the new profile.

   This is the name that is displayed in lists where the profiles are available for selection.
5. Select **VFS** from the **Source control system** list box.
6. Type the URL of the VFS **Repository** you want to access.

   Specify the appropriate protocol type in the URL:

FTP	`ftp://<ftp server URL>`
HTTP	http://<http server URL>
SMB	smb://<Samba server url>

   Note: This field is case sensitive.

   Note: HTTP, FTP and SMB are also supported for zipped files. In order to point to a zipped file the URL must be adjusted to `<zipped file type>:<protocol>://<server URL pointing to zipped file>` to include the type of the zipped file. For example, `zip:http://193.80.200.135/<path>/archive.zip` or `jar:http://193.80.200.135/<path>/archive.jar`.
7. Type a valid VFS **Username** and **Password**.

   These credentials will be used to access your VFS repository. The SMB protocol allows including the domain name in the username in the following form: `domain/username`.
8. Type the **Working folder** to which the Silk Central execution server should copy the source files.

   The working folder must be a local path. For example, `C:\TempSources\`.
9. Type the **Project path** you want this profile to use. Click **Browse** to display the **Select Project Path** dialog box. The **Select Project Path** dialog box opens. Select the desired project path in the tree view and click **OK**. Leaving this text box empty sets the project path to the root directory.
10. Click **OK**.

    Silk Central attempts a trial connection to the external system using the information you have provided.

    Note: If an error occurs, please review the information that you have supplied, or consult your administrator.

If the trial connection is successful, you are returned to the **Source Control** page.

Editing VFS Source Control Profiles

To modify a VFS source control profile:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Source Control** tab. The **Source Control** page opens, listing all of the source control profiles that have been created for the system.

3. Click on the name of the source control profile that you want to modify. The **Edit Source Control Profile** dialog box opens.
4. Edit the **Name** of the profile.

   This is the name that is displayed in lists where profiles are available for selection.
5. Edit the URL of the VFS **Repository** you want to access.

   Note: This field is case sensitive.
6. Edit the **Username** and **Password**.

   These credentials are used to access your repository.
7. Edit the **Working folder** to which the Silk Central execution server copies the source files.

   The working folder must be a local path. For example, `C:\TempSources\`.
8. Edit the **Project path** you want this profile to use.
9. Click **OK**.

   Silk Central attempts a trial connection to the external system using the information you have provided.

   Note: If an error occurs, please review the information that you have supplied, or consult your administrator.

If the trial connection is successful, you are returned to the **Source Control** page.

Git

This section describes how to configure Git source control profiles.

Git is a distributed revision control and source code management (SCM) system with an emphasis on speed. Every Git working directory is a full-fledged repository with complete history and full version tracking capabilities, not dependent on network access or a central server.

Adding Git Source Control Profiles

To create a Git source control profile:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Source Control** tab. The **Source Control** page opens, listing all of the source control profiles that have been created for the system.
3. Click **New Profile** to open the **New Source Control Profile** dialog box.
4. Type a **Name** for the new profile.

   This is the name that is displayed in lists where the profiles are available for selection.
5. Select **Git** from the **Source control system** list box.
6. Type the URL of the Git **Repository** you want to access.
7. Type a valid Git **Username** and **Password**, if required.
8. Type the **Working folder** to which the Silk Central execution server should copy the source files.

   The working folder must be a local path. For example, `C:\TempSources\`.
9. Type the **Project path** you want this profile to use. Click **Browse** to display the **Select Project Path** dialog box. The **Select Project Path** dialog box opens. Select the desired project path in the tree view and click **OK**. Leaving this text box empty sets the project path to the root directory.
10. Click **OK**.

    Silk Central attempts a trial connection to the external system using the information you have provided.

Note: If an error occurs, please review the information that you have supplied, or consult your administrator.

If the trial connection is successful, you are returned to the **Source Control** page.

Editing Git Source Control Profiles

To modify a Git source control profile:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Source Control** tab. The **Source Control** page opens, listing all of the source control profiles that have been created for the system.
3. Click on the name of the source control profile that you want to modify. The **Edit Source Control Profile** dialog box opens.
4. Edit the **Name** of the profile.

   This is the name that is displayed in lists where profiles are available for selection.
5. Edit the URL of the Git **Repository** you want to access.

   Note: This field is case sensitive.
6. Edit the **Username** and **Password**.

   These credentials are used to access your repository.
7. Edit the **Working folder** to which the Silk Central execution server copies the source files.

   The working folder must be a local path. For example, `C:\TempSources\`.
8. Edit the **Project path** you want this profile to use.
9. Click **OK**.

   Silk Central attempts a trial connection to the external system using the information you have provided.

   Note: If an error occurs, please review the information that you have supplied, or consult your administrator.

If the trial connection is successful, you are returned to the **Source Control** page.

Microsoft Team Foundation Server

This section describes how to configure Team Foundation Server (TFS) source control profiles.

TFS versions that are currently supported for integration with Silk Central: Team Foundation Server 2010, 2012, 2013

Note: To add a TFS source control profile, the Microsoft Visual Studio Team Explorer Everywhere command-line client needs to be installed on the front-end server and every execution server on which you want to use the source control profile. You can download the CLC from the *Microsoft Download Center*. You must run Team Explorer Everywhere and accept the license agreement to make the integration work. For more information, refer to this *knowledge base article*.

Adding TFS Source Control Profiles

To add a TFS source control profile, the Microsoft Visual Studio Team Explorer Everywhere command-line client needs to be installed on the front-end server and every execution server on which you want to use the source control profile. You can download the CLC from the *Microsoft Download Center*. You must run Team Explorer Everywhere and accept the license agreement to make the integration work. For more information, refer to this *knowledge base article*.

To create a TFS source control profile:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Source Control** tab. The **Source Control** page opens, listing all of the source control profiles that have been created for the system.
3. Click **New Profile** to open the **New Source Control Profile** dialog box.
4. Type a **Name** for the new profile.

   This is the name that is displayed in lists where the profiles are available for selection.
5. Select **Team Foundation Server** from the **Source control system** list box.
6. Enter the **URL** of your TFS installation.

   For example, `http://tfsserver:8080/tfs`.
7. Type the **Domain** of the TFS user.
8. Type a valid **Username** and **Password**.

   These credentials will be used to access your repository.
9. Type the **Working folder** to which the Silk Central execution server should copy the source files.

   The working folder must be a local path. For example, `C:\TempSources\`.
10. Type the **Project path** you want this profile to use. Click **Browse** to display the **Select Project Path** dialog box. The **Select Project Path** dialog box opens. Select the desired project path in the tree view and click **OK**. Leaving this text box empty sets the project path to the root directory.
11. Click **OK**.

    Silk Central attempts a trial connection to the external system using the information you have provided.

    Note: If an error occurs, please review the information that you have supplied, or consult your administrator.

If the trial connection is successful, you are returned to the **Source Control** page.

Editing TFS Source Control Profiles

To add a TFS source control profile, the Microsoft Visual Studio Team Explorer Everywhere command-line client needs to be installed on the front-end server and every execution server on which you want to use the source control profile. You can download the CLC from the *Microsoft Download Center*. You must run Team Explorer Everywhere and accept the license agreement to make the integration work. For more information, refer to this *knowledge base article*.

To modify a TFS source control profile:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Source Control** tab. The **Source Control** page opens, listing all of the source control profiles that have been created for the system.
3. Click on the name of the source control profile that you want to modify. The **Edit Source Control Profile** dialog box opens.
4. Edit the **Name** of the profile.

   This is the name that is displayed in lists where profiles are available for selection.
5. Edit the URL of the TFS **Repository** you want to access.
6. Edit the **Username** and **Password**.

   These credentials are used to access your repository.
7. Edit the **Working folder** to which the Silk Central execution server copies the source files.

   The working folder must be a local path. For example, `C:\TempSources\`.

8. Edit the **Project path** you want this profile to use.
9. Click **OK**.

   Silk Central attempts a trial connection to the external system using the information you have provided.

   Note: If an error occurs, please review the information that you have supplied, or consult your administrator.

If the trial connection is successful, you are returned to the **Source Control** page.

Serena Version Manager (PVCS)

This section describes how to configure Serena Version Manager (PVCS) source control profiles.

Serena Version Manager, from the makers of PVCS, is the full-featured solution for version control and revision management in software projects. More than simply storing code revisions, Version Manager is a robust, full-featured solution with security, high performance, and varying levels of support for distributed teams.

Note: To add a PVCS source control profile, the PVCS client needs to be installed on the front-end server and every execution server on which you want to use the source control profile.

Adding PVCS Source Control Profiles

To create a PVCS source control profile:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Source Control** tab. The **Source Control** page opens, listing all of the source control profiles that have been created for the system.
3. Click **New Profile** to open the **New Source Control Profile** dialog box.
4. Type a **Name** for the new profile.

   This is the name that is displayed in lists where the profiles are available for selection.
5. Select **PVCS** from the **Source control system** list box.
6. Type the UNC path of the PVCS **Repository** you want to access.

   If you do not know the UNC path of the repository, consult your PVCS administrator.
7. Type a valid **UNC username** and **UNC password**.

   These credentials are required to access the UNC path of the configuration file.
8. Type the **Working folder** to which the Silk Central execution server should copy the source files.

   The working folder must be a local path. For example, `C:\TempSources\`.
9. Type the **Execution path**. This is the local path of the PVCS installation, where the command line tool `pcli.exe` is located. The default path is `C:\Program Files\Serena\vm\win32\bin`.

   Note: The PVCS client software must be installed on the front-end server and each execution server. PVCS must be installed in identical paths on each machine. For example, if you install PVCS on the TestPartner front-end server to `C:\Program Files\Serena\`, you must install PVCS in the same path on the execution servers.
10. Type a valid **Username** and **Password**.

    These credentials will be used to access your repository.
11. Type the **Project path** you want this profile to use. Click **Browse** to display the **Select Project Path** dialog box. The **Select Project Path** dialog box opens. Select the desired project path in the tree view and click **OK**. Leaving this text box empty sets the project path to the root directory.
12. Click **OK**.

    Silk Central attempts a trial connection to the external system using the information you have provided.

Note: If an error occurs, please review the information that you have supplied, or consult your administrator.

If the trial connection is successful, you are returned to the **Source Control** page.

Editing PVCS Source Control Profiles

To modify a PVCS source control profile:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Source Control** tab. The **Source Control** page opens, listing all of the source control profiles that have been created for the system.
3. Click on the name of the source control profile that you want to modify. The **Edit Source Control Profile** dialog box opens.
4. Edit the **Name** of the profile.

   This is the name that is displayed in lists where profiles are available for selection.
5. Edit the UNC path of the PVCS **Repository**. If you do not know the UNC path of the repository, consult your PVCS administrator.
6. Edit the **UNC username** and **UNC password** as required. These credentials are required to access the repository UNC path you specified above.
7. Edit the **Working folder** to which the Silk Central execution server copies the source files.

   The working folder must be a local path. For example, `C:\TempSources\`.
8. Edit the **Execution path**. This is the local path of the PVCS installation, where the command line tool `pcli.exe` is located. The default path is `C:\Program Files\Merant\vm\win32\bin`.

   Note: The PVCS client software must be installed on the front-end server and each execution server. PVCS must be installed in identical paths on each machine. For example, if you install PVCS on the Silk Central front-end server to `C:\Program Files\Serena\`, you must install PVCS in the same path on the execution servers.
9. Edit the **Username** and **Password**.

   These credentials are used to access your repository.
10. Edit the **Project path** you want this profile to use.
11. Click **OK**.

    Silk Central attempts a trial connection to the external system using the information you have provided.

    Note: If an error occurs, please review the information that you have supplied, or consult your administrator.

If the trial connection is successful, you are returned to the **Source Control** page.

Silk Test Workbench

This section describes how to configure Silk Test Workbench source control profiles.

Silk Test Workbench is an automated testing tool that accelerates the functional testing of complex applications. Silk Test Workbench provides support for testing applications developed in a wide variety of development tools including Java, .NET, browser-based web applications, and COM components, including both ActiveX controls and automation objects. With Silk Test Workbench, you can record user sessions with your applications to create tests, enhance the test by adding validation and test logic, and play back tests to ensure that the applications work as expected.

Note: To add a Silk Test Workbench source control profile, the Silk Test Workbench client needs to be installed on every execution server on which you want to use the source control profile.

Adding Silk Test Workbench Source Control Profiles

To create a Silk Test Workbench source control profile:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Source Control** tab. The **Source Control** page opens, listing all of the source control profiles that have been created for the system.
3. Click **New Profile** to open the **New Issue Tracking Profile** dialog box.
4. Type a **Name** for the new profile.

   This is the name that is displayed in lists where the profiles are available for selection.
5. Select **Silk Test Workbench Test** from the **Source control system** list box.
6. Select a database type from the **Database type** list box, either SQL Server or Oracle.

   Note: The Microsoft Office Access database type is not supported. When connecting to a Silk Test Workbench Oracle database, there is a Silk Test Workbench requirement that the TNS name must be the same as the host server name.
7. Enter the name of the Silk Test Workbench database server in the **Database server** text box.
8. Enter the name of the Silk Test Workbench database in the **Database name** text box.
9. Enter the port number of the Silk Test Workbench database server in the **Database port** text box.
10. Enter the Silk Test Workbench database schema or owner name in the **Database schema/owner name** text box.
11. Enter the name of the database user in the **Database user** text box.
12. Enter the password for the database user in the **Database password** text box.
13. Enter the name of a valid Silk Test Workbench user in the **Silk Test Workbench User name** text box.
14. Enter the password for the Silk Test Workbench user in the **Silk Test Workbench password** text box.
15. Type the **Working folder** to which the Silk Central execution server should copy the source files.

    The working folder must be a local path. For example, `C:\TempSources\`.
16. Click **Retrieve**. All projects are listed in the **Projects** list.
17. Select one or more projects.
18. Click **OK**.

Editing Silk Test Workbench Source Control Profiles

To modify a Silk Test Workbench source control profile:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Source Control** tab. The **Source Control** page opens, listing all of the source control profiles that have been created for the system.
3. Click on the name of the source control profile that you want to modify. The **Edit Source Control Profile** dialog box opens.
4. Edit the **Name** of the profile.

   This is the name that is displayed in lists where profiles are available for selection.
5. Edit the Silk Test Workbench **Database type**.

   Note: The Microsoft Office Access database type is not supported.
6. Choose from the following options:

- Edit the Silk Test Workbench **Database server**.
- Edit the Silk Test Workbench **Database name**.
- Edit the **Database port** number of the Silk Test Workbench database server.
- Edit the Silk Test Workbench **Database schema/owner name**.
- Edit the Silk Test Workbench **Database user**.
- Edit the Silk Test Workbench **Database password**.
- Edit the Silk Test Workbench **User name**.
- Edit the Silk Test Workbench **Password**.

7. Edit the **Working folder** to which the Silk Central execution server copies the source files.
   The working folder must be a local path. For example, `C:\TempSources\`.
8. Select one or more projects from the **Projects** list.
9. Click **OK**.

StarTeam Source Control Profiles

This section describes how to configure StarTeam source control profiles.

StarTeam promotes team communication and collaboration through centralized control of all project assets. Protected yet flexible access ensures that team members can work whenever and wherever they like through an extensive choice of Web, desktop, IDE, and command-line clients. StarTeam offers a uniquely comprehensive solution that includes integrated requirements management, change management, defect tracking, file versioning, threaded discussions, and project and task management.

StarTeam versions that are currently supported for integration with Silk Central: StarTeam 13.1, 14.1

Adding StarTeam Source Control Profiles

To create a StarTeam source control profile:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Source Control** tab. The **Source Control** page opens, listing all of the source control profiles that have been created for the system.
3. Click **New Profile** to open the **New Source Control Profile** dialog box.
4. Type a **Name** for the new profile.
   This is the name that is displayed in lists where the profiles are available for selection.
5. Select **StarTeam** from the **Source control system** list box.
6. Type the **Hostname** of your StarTeam server.
7. Type the **Port** that is to be used to connect to the StarTeam server.
   If the port is not changed, use the default port `49201`.
8. Type a valid **Username** and **Password**.
   These credentials will be used to access your repository.
9. Specify if the profile supports **Encryption**.
10. Type the **Working folder** to which the Silk Central execution server should copy the source files.
    The working folder must be a local path. For example, `C:\TempSources\`.
11. Type the **Project path** you want this profile to use. Click **Browse** to display the **Select Project Path** dialog box. The **Select Project Path** dialog box opens. Select the desired project path in the tree view and click **OK**. Leaving this text box empty sets the project path to the root directory.
12. Click **OK**.

    Silk Central attempts a trial connection to the external system using the information you have provided.

Note: If an error occurs, please review the information that you have supplied, or consult your administrator.

If the trial connection is successful, you are returned to the **Source Control** page.

Editing StarTeam Source Control Profiles

To modify a StarTeam source control profile:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Source Control** tab. The **Source Control** page opens, listing all of the source control profiles that have been created for the system.
3. Click on the name of the source control profile that you want to modify. The **Edit Source Control Profile** dialog box opens.
4. Edit the **Name** of the profile.

   This is the name that is displayed in lists where profiles are available for selection.
5. Choose from the following options:
   - Edit the **Hostname** of your StarTeam server.
   - Edit the port that is to be used to connect to the StarTeam server. If the port is not changed, use the default port `49201`.
   - Specify if the profile supports **Encryption**.
6. Edit the **Project path** you want this profile to use.
7. Edit the **Username** and **Password**.

   These credentials are used to access your repository.
8. Edit the **Working folder** to which the Silk Central execution server copies the source files.

   The working folder must be a local path. For example, `C:\TempSources\`.
9. Click **OK**.

   Silk Central attempts a trial connection to the external system using the information you have provided.

   Note: If an error occurs, please review the information that you have supplied, or consult your administrator.

If the trial connection is successful, you are returned to the **Source Control** page.

Subversion

This section describes how to configure Subversion (SVN) source control profiles.

Subversion (SVN) is the successor to the Concurrent Versions System (CVS). Subversion manages versions using transaction numbers. With each commit, the transaction number is incrementally increased.

What other source control systems call *labels*, Subversion refers to as *tags*. These tags are encoded in the Subversion URL. For example, `http://MyHost/svn/MyApp/trunk` is a Subversion URL and `http://MyHost/svn/MyApp/tags/build1012` is a Subversion tag.

Silk Central supports Subversion tags. If a Subversion URL contains the `trunk` directory, you can define a label `tags/build1012`. This label replaces `trunk` in the Subversion URL.

Note: If a Subversion URL does not contain `trunk` and you define a label, Silk Central throws an error.

Adding Subversion Source Control Profiles

To create a Subversion source control profile:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Source Control** tab. The **Source Control** page opens, listing all of the source control profiles that have been created for the system.
3. Click **New Profile** to open the **New Source Control Profile** dialog box.
4. Type a **Name** for the new profile.

   This is the name that is displayed in lists where the profiles are available for selection.
5. Choose **Subversion** from the **Source control system** list box.
6. Type the URL of the Subversion **Repository** you want to access.

   If you do not know the URL of the repository, consult your Subversion administrator.

   Note: To use SSH, add *ssh* to the URL, for example `svn+ssh://<hostname>:<port>`.
7. Type a valid **Username** and **Password**.

   These credentials will be used to access your repository.
8. Type a valid **SSH username** and **SSH password** or **SSH keyfile**.

   These credentials are used to access the SSH server. The password overrides the keyfile, so if you only have a keyfile, leave the **SSH password** text box empty. If you use a keyfile, the path to the keyfile must be valid on every execution server that uses the source control profile.
9. Type the **Working folder** to which the Silk Central execution server should copy the source files.

   The working folder must be a local path. For example, `C:\TempSources\`.
10. Type the **Project path** you want this profile to use. Click **Browse** to display the **Select Project Path** dialog box. The **Select Project Path** dialog box opens. Select the desired project path in the tree view and click **OK**. Leaving this text box empty sets the project path to the root directory.
11. Click **OK**.

    Silk Central attempts a trial connection to the external system using the information you have provided.

    Note: If an error occurs, please review the information that you have supplied, or consult your administrator.

If the trial connection is successful, you are returned to the **Source Control** page.

Editing Subversion Source Control Profiles

To modify a Subversion source control profile:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Source Control** tab. The **Source Control** page opens, listing all of the source control profiles that have been created for the system.
3. Click on the name of the source control profile that you want to modify. The **Edit Source Control Profile** dialog box opens.
4. Edit the **Name** of the profile.

   This is the name that is displayed in lists where profiles are available for selection.
5. Edit the **URL** of the Subversion repository you want to access.

   If you do not know the URL of the repository, please consult your Subversion administrator.

Note: If you cannot check out files, when editing the URL of the Subversion **Repository**, delete the source control mirrors directory on your execution server. For example, `C:\ProgramData\SilkCentral\SrcCtrlMirrors`.

Note: To use SSH, add *ssh* to the URL, for example `svn+ssh://<hostname>:<port>`.

6. Edit the **Username** and **Password**.

   These credentials are used to access your repository.
7. Type a valid **SSH username** and **SSH password** or **SSH keyfile**.

   These credentials are used to access the SSH server. The password overrides the keyfile, so if you only have a keyfile, leave the **SSH password** text box empty. If you use a keyfile, the path to the keyfile must be valid on every execution server that uses the source control profile.
8. Edit the **Working folder** to which the Silk Central execution server copies the source files.

   The working folder must be a local path. For example, `C:\TempSources\`.
9. Edit the **Project path** you want this profile to use.
10. Click **OK**.

    Silk Central attempts a trial connection to the external system using the information you have provided.

    Note: If an error occurs, please review the information that you have supplied, or consult your administrator.

If the trial connection is successful, you are returned to the **Source Control** page.

TestPartner

This section describes how to configure TestPartner source control profiles.

TestPartner is a Micro Focus product that tests Web- and Microsoft Windows-based applications that use Microsoft technologies. TestPartner records user actions to quickly produce powerful tests. Each recorded test displays as a series of actions in clear, concise steps that can be easily understood by all testers, from novice to expert. You can record user sessions with the application, add validation functions, and replay the sessions later to ensure that the application works as expected.

Note: To add a TestPartner source control profile, the TestPartner client needs to be installed on every execution server on which you want to use the source control profile.

Adding TestPartner Source Control Profiles

To create a TestPartner source control profile:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Source Control** tab. The **Source Control** page opens, listing all of the source control profiles that have been created for the system.
3. Click **New Profile** to open the **New Source Control Profile** dialog box.
4. Type a **Name** for the new profile.

   This is the name that is displayed in lists where the profiles are available for selection.
5. Select **TestPartner** from the **Source control system** list box.

   Note: When connecting to a TestPartner Oracle database, there is a TestPartner requirement that the TNS name must be the same as the host server name.
6. Select a database type from the **Database type** list box, either SQL Server or Oracle.
7. Type the name of the database server in the **Database server** text box.

8. Type the name of the database in the **Database name** text box.
9. Type the port number of the database server in the **Database port** text box.
10. Type the database schema or owner name in the **Database schema/owner name** text box.
11. Type the name of the database user in the **Database user** text box.
12. Type the password for the database user in the **Database password** text box.
13. Type a valid **Username** and **Password**.

    These credentials will be used to access your repository.
14. Type the **Working folder** to which the Silk Central execution server should copy the source files.

    The working folder must be a local path. For example, `C:\TempSources\`.
15. Use the **Project path** text box to filter which scripts from the database are available to use as tests. Click **Browse** to display the **Select Project Path** dialog box.

    The **Select Project Path** dialog box provides a tree of three levels that you can choose from:

First level	The entire TestPartner database. Note that if you select this level, the **Project path** text box will remain blank.
Second level	The TestPartner project.
Third level	The script type within a specified TestPartner project.

    Select one of the preceeding options and click **OK**. The path will be added to the **Project Path** text box.
16. Click **OK**.

Editing TestPartner Source Control Profiles

To modify a TestPartner source control profile:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Source Control** tab. The **Source Control** page opens, listing all of the source control profiles that have been created for the system.
3. Click on the name of the source control profile that you want to modify. The **Edit Source Control Profile** dialog box opens.
4. Edit the **Name** of the profile.

   This is the name that is displayed in lists where profiles are available for selection.
5. Choose from the following options:
   - Edit the TestPartner **Database type**.
   - Edit the TestPartner **Database server**.
   - Edit the TestPartner **Database name**.
   - Edit the TestPartner number of the TestPartner database server.
   - Edit the TestPartner **Database schema/owner name**.
   - Edit the TestPartner **Database user**.
   - Edit the TestPartner **Database password**.
6. Edit the **Username** and **Password**.

   These credentials are used to access your repository.
7. Edit the **Project path** you want this profile to use.
8. Edit the **Working folder** to which the Silk Central execution server copies the source files.

   The working folder must be a local path. For example, `C:\TempSources\`.
9. Click **OK**.

Universal Naming Convention

This section describes how to configure Universal Naming Convention (UNC) source control profiles.

Short for Universal Naming Convention or Uniform Naming Convention, UNC is a PC format for specifying the location of resources on a local-area network (LAN). UNC uses the following format: `\\server-name \shared-resource-pathname`.

For example, to access the file `test.txt` in the directory `examples` on the shared server `silo`, you would write: `\\silo\examples\test.txt`.

You can also use UNC to identify shared peripheral devices, such as printers. The idea behind UNC is to provide a format so that each shared resource can be identified with a unique address.

UNC is only supported on Microsoft Windows operating systems. If you plan to use a non-windows execution server you can use the Apache Commons VFS source control profile instead.

Adding UNC Source Control Profiles

To create a UNC source control profile:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Source Control** tab. The **Source Control** page opens, listing all of the source control profiles that have been created for the system.
3. Click **New Profile** to open the **New Source Control Profile** dialog box.
4. Type a **Name** for the new profile.

   This is the name that is displayed in lists where the profiles are available for selection.
5. Select **UNC** from the **Source control system** list box.
6. Type the **UNC path** that you want to access.

   This is the path to the location where your test sources are located.
7. Type the **Working folder** to which the Silk Central execution server should copy the source files.

   The working folder must be a local path. For example, `C:\TempSources\`.
8. Type a valid **UNC username** and **UNC password**.

   These credentials are required to access the UNC path of the configuration file.
9. Click **OK**.

   Silk Central attempts a trial connection to the external system using the information you have provided.

   Note: If an error occurs, please review the information that you have supplied, or consult your administrator.

If the trial connection is successful, you are returned to the **Source Control** page.

Editing UNC Source Control Profiles

To modify a UNC source control profile:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Source Control** tab. The **Source Control** page opens, listing all of the source control profiles that have been created for the system.
3. Click on the name of the source control profile that you want to modify. The **Edit Source Control Profile** dialog box opens.

4. Edit the **Name** of the profile.
   This is the name that is displayed in lists where profiles are available for selection.
5. Edit the **UNC path**.
   This is the path to where your test sources are located.
6. Edit the **Working folder** to which the Silk Central execution server copies the source files.
   The working folder must be a local path. For example, `C:\TempSources\`.
7. Edit the **UNC username** and **UNC password**.
   These credentials are required to access your configuration file's UNC path.
8. Click **OK**.

   Silk Central attempts a trial connection to the external system using the information you have provided.

   Note: If an error occurs, please review the information that you have supplied, or consult your administrator.

If the trial connection is successful, you are returned to the **Source Control** page.

Deleting Source Control Profiles

To remove a source control profile:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Source Control** tab. The **Source Control** page opens, listing all of the source control profiles that have been created for the system.
3. In the **Actions** column of the issue tracking profile you wish to delete, click **Delete source control profile ...**. A confirmation dialog box displays.
4. Click **Yes**. You are returned to the **Source Control** page.

Source Control Profiles Page

Project:<Project Name> > **Project Settings** > **Source Control**

Use this page to configure profiles to integrate external source control systems with Silk Central. Click **New Profile** to create a new source control profile. For each source control profile, the page displays the following columns:

Item	Description
Name	The name of the profile as it displays in the Silk Central GUI and in reports. Click the name to edit a profile.
Type	The external source control system.
Working Folder	Local or mapped working folder to which temporary sources are checked out to.
Created On	Date when the source control profile was created.
Created By	The user who created the source control profile.
Changed On	Date when the source control profile was last modified.
Changed By	The user who last modified the source control profile.
Actions	**Delete source control profile**

Data Sources for Data-Driven Tests

Data-driven tests are tests that are derived from values in an existing data source, such as a spreadsheet or a database. The data sources are managed in a project-specific scope.

Tip: To aknowledge changes in your data source to Silk Central, you must synchronize your data source profile with your data source whenever your data source is updated or changed.

Configuring JDBC Data Sources

Caution: The concatenated length of all primary keys may not exceed 255 characters in length for JDBC data sources.

To configure a JDBC data source:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Data Sources** tab. The **Data Sources** page displays, listing all of the data sources that have been created for the system.
3. Click **New Data Source** to open the **New Data Source** dialog box.
4. Type a **Name** for the data source.
5. From the **Data source type** list box, select `JDBC`.

   Note: If you are setting up an ODBC data source, you need to manually insert your ODBC **Driver class** and **URL**. For example, **Driver class**: `sun.jdbc.odbc.JdbcOdbcDriver`, **URL**: `jdbc:odbc:MyDatabaseName`. You must also set up an ODBC data source in MS Windows in the **Administrative Tools**. For more information, refer to Microsoft Windows Help. If you have your front-end server and your application server on different machines, make sure that the name of your system data source set-up in Microsoft Windows is the same as the ODBC data source. These names are case-sensitive.
6. If you select **JDBC** as the **Data source type**, the **Driver class** text box is populated automatically. In the **URL** text box, replace the host name value, `<hostname>`, with the name of the computer that is hosting the data source and replace the database name value, `<databasename>`, with the name of the target database.
7. In the **Username** and **Password** text boxes, enter valid database credentials.
8. *Optional:* If you are working with a database that includes multiple tables, and you want to narrow down the data source to specific tables, you can browse to and select specific tables for inclusion:
   1. Click **[...]** next to the **Table filter** text box.
   2. The **Select Table Filter** dialog box displays. Select the tables that you want included as your data source.
   3. Click **OK**.
9. *Optional:* **Key column** selection is used by tests to define which worksheet columns within a data source are used as primary key. This is helpful if your data source will undergo edits, for example when you add or remove rows within a worksheet. Even if your data source is edited, tests will still be able to identify which columns or rows should be used. Tests created from data-driven data sources use key column values in their names, rather than column numbers.

   To configure a key column:
   1. Click **[...]** next to the **Key column** text box.
   2. The **Select Key Column** dialog box displays. Select a column from the column list that is to act as a key column.
   3. Click **OK**.

10. Click **OK** on the **New Data Source** dialog box.

Configuring Microsoft Excel or CSV Data Sources

Caution: Excel worksheets using password protection can not be configured as data sources for Silk Central. Turn off a worksheet's password protection to use it as data source for data-driven testing. Values within any cell of an Excel or CSV data source may not exceed 255 characters in length. Additionally, the concatenated length of all primary keys may also not exceed 255 characters in length for Excel and CSV.

To configure a Microsoft Excel or CSV data source:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Data Sources** tab. The **Data Sources** page displays, listing all of the data sources that have been created for the system.
3. Click **New Data Source** to open the **New Data Source** dialog box.
4. Type a **Name** for the data source.
5. From the **Data source type** list box, select **MS Excel** to configure a Microsoft Excel data source, or select **CSV** to configure a CSV data source.
6. From the **Source control profile** list box, select the pre-configured source control profile that hosts your data file. For detailed information regarding the configuration of source control profiles, see *Source Control Profiles*.
7. Click **Browse** to open the **Select Source Control Path** dialog box. Browse to and select a data source file of the selected type in your source control path.
8. *Optional:* MS Excel only. If you are working with an Excel spreadsheet that includes multiple worksheets, and you want to narrow down the data source to specific worksheets, you can browse to and select specific worksheets for inclusion. To do this:
   1. Click **[...]** next to the **Worksheet filter** text box.
   2. The **Select Worksheet Filter** dialog box displays. Select the worksheets that you want included as your data source.
   3. Click **OK**.
9. *Optional:* **Key column** selection is used by tests to define which worksheet columns within a data source are used as primary key. This is helpful if your data source will undergo edits, for example when you add or remove rows within a worksheet. Even if your data source is edited, tests will still be able to identify which columns or rows should be used. Tests created from data-driven data sources use key column values in their names, rather than column numbers.

   Note: MS Excel only: If the data source includes multiple worksheets, only columns with identical names are available to be defined as key columns.

   To configure a key column:

   1. Click **[...]** next to the **Key column** text box.
   2. The **Select Key Column** dialog box displays. Select a column from the column list that is to act as a key column.
   3. Click **OK**.
10. Click **OK** on the **New Data Source** dialog box.

Downloading Excel Files from a Data Source

Note: Files can not be downloaded from JDBC and ODBC data sources.

To download an Excel file from a data source:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Data Sources** tab. The **Data Sources** page displays, listing all of the data sources that have been created for the system.
3. Click the **Download** icon in the **Actions** column of the data source you want to download from. The **File Download** dialog box displays.
4. Click **Open** to open the file immediately, or click **Save** to specify where on your local system you want to save the file to.

Synchronizing Data Sources

You must synchronize a data source each time it is changed or updated, if you want to make Silk Central aware of the changes. Synchronizing a data source propagates recent changes to associated tests.

To synchronize an updated data source:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Data Sources** tab. The **Data Sources** page displays, listing all of the data sources that have been created for the system.
3. Click the **Synchronize** icon in the **Actions** column that corresponds to your data source to propagate the updated file to the associated tests.
4. A confirmation dialog box displays, asking you to confirm the synchronization. Click **Yes** to synchronize all tests with the updated data source, or click **No** to abort the synchronization.

   Caution: When you synchronize a data source, all running executions depending on this data source are aborted. Results of incomplete tests within these executions are lost.
5. Click **OK** on the success message dialog box.

Uploading Updated Excel Files to a Data Source

Note: Files can not be uploaded to JDBC and ODBC data sources.

To upload an updated Excel file to a data source:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Data Sources** tab. The **Data Sources** page displays, listing all of the data sources that have been created for the system.
3. Click the **Upload** icon in the **Actions** column of the data source you want to download from.
4. Click **Browse...** on the **Upload File** dialog box.
5. Select the updated Excel file that you want to replace the currently uploaded Excel file with. Click **Open**.
6. Click **OK** on the **Upload File** dialog box.
7. A confirmation dialog box displays, asking you to confirm the overwriting of the existing file. Click **Yes** to continue.
8. After uploading the updated data source file, another dialog box displays, asking you if you want to synchronize the tests with the updated data source. Click **Yes** to synchronize immediately, or click **No** if you want to synchronize later.

Note: After uploading an updated data source file, you must synchronize the data source so that associated tests are updated.

Deleting Data Sources

Note: Data sources that are being used by tests can not be deleted.

To delete a data source:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Data Sources** tab. The **Data Sources** page displays, listing all of the data sources that have been created for the system.
3. Click the **Delete** icon in the **Actions** column of the data source that you want to delete.
4. A confirmation dialog box displays. Click **Yes** to remove the data source, or click **No** to abort the deletion.

Data Sources Configuration Page

Project:<Project Name> > **Project Settings** > **Data Sources**

The **Data Sources** page lists all data sources that are configured for the integration of data-driven tests into Silk Central. Click **New Data Source** to create a new data source. For each data source, the page displays the following columns:

Column	Description
Name	The name of the data source as it displays in the Silk Central GUI and in reports. Click the name to modify the data source settings.
Type	Data source type: • CSV • JDBC • MS Excel
Created On	Date when the data source was created.
Created By	User who created the data source.
Changed On	Date when the data source was last modified.
Changed By	User who last modified the data source.
Actions	You can perform the following actions on a data source: • **Delete** • **Download** • **Upload** • **Synchronize**

Status Reasons

Status reasons qualify the status of a manual test run. This allows you to specify why a specific test run has the status **Passed**, **Failed** or **Not Executed**. You can define up to five reasons for each status. Per default, the reason **Unsupported** is added to the status **Passed**, and the reason **Unresolved** is added to the status **Failed**. Adding additional reasons for each status helps you qualify the status of a test run, for example, you could define the following reasons for the statuses:

- **Passed**: Unsupported
- **Failed**: Unresolved, System crashed, Bug, Help not available, Client system is unresponsive
- **Not Executed**: On hold - internally, On hold - customer, Test environment unavailable

Defining Status Reasons

You need to have **Manage tests and executions** permission to add or update status reasons, and **Delete tests and executions** permission to remove status reasons. See *Tests and Executions Permissions* for detailed information.

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Status Reasons** tab.
3. Click **Add Status Reason** below the status for which you want to add a new reason. A new status reason is added to the list of reasons.
4. Click into the new status reason field and enter a descriptive text.
5. Press **Enter** to save your status reason text.

Existing status reason texts can also be modified by clicking into the status reason field and entering a descriptive text, followed by pressing **Enter**.

Filtering

Filters

Filters provide an efficient means of finding exactly the information you need, while excluding extraneous detail. Filters highlight only those elements that are relevant to your needs, and enable you to quickly sort through requirements, test elements, and execution plans. By defining global filters, you can create complex filter criteria that are available throughout Silk Central without defining filter criteria each time you need to filter a list.

Based on your needs, you can create new filters, edit existing filters, select filters, delete filters, or turn filtering off at the project level. Projects do not contain default filters. You can access and edit filters from the toolbars in the Silk Central units and from the **Project Settings** unit.

Note: Filters are not applied to reports. The **Recent Changes** filter enables you to view project-wide changes and additions that other users have made to tests since your last change acknowledgement. The **Show Changes/Show All** toggle button and the **Acknowledge** button in the **Tests** area help you to find out what changes other users have made. Your system administrator can configure email notifications that alert you to changes that are made to test settings. Email alerts include links that take you directly to a view of recent changes.

Global Filter Details

Global filters allow you to quickly sort through elements in a Silk Central area, highlighting only those that are relevant to your needs.

To view the details of a global filter, click **Project:<Project Name>** > **Project Settings** > **Filters** in the menu, and click on the name of the filter.

The specific Silk Central area in which a new filter is available is defined by selecting the general filter category. The following list shows the general filter categories:

General Filter Category	Description
Requirement	The filter will be available in the **Requirements** area.
Test	The filter will be available in the **Tests** area
Execution	The filter will be available in the **Execution** area.

Depending on the general filter category, the following attribute categories are available:

Filter Category	Attribute Category
Requirement	• Test Attribute • Test Parameter • Test Property • Silk Test Classic Test Property • Requirements Property • Requirements Coverage • Nested Test Filter • Nested Requirement Filter
Test	• Test Attribute • Test Parameter • Test Property • Silk Test Classic Test Property • Third Party Test Property • Test Child Nodes • Requirements Property • Requirements Coverage • Assigned Issues • Nested Test Filter • Nested Requirement Filter
Execution	• Execution Property • Execution Schedule • Execution Plan Run • Execution Test Container • Execution Plan Deployment • Nested Execution

Each global filter has to have a property, an operator, and a value from the respective list boxes:

Property Available properties depend on the filter category. It defines the property for which you are defining a filter setting. If you selected an attribute category, the property list includes custom attributes to query against.

Operator Specifies the filter operator. The operator depends on the property type. For example, if you select a property that is based on a string field type, the available operators are = (equals defined value), `not` (differs from the defined value), `contains` (contains the defined value somewhere in the string), and `does not contain` (does not contain the defined value in the string).

Value The value that you want to filter out. Depending on the property type that you have selected, values will either be strings that you can enter into the text box, or a selection of predefined values that you can select from the list box.

Recent Changes

The *Recent Changes* filter enables you to efficiently view and acknowledge changes and additions that other users have made to requirements, tests, or execution plans project-wide since your last change acknowledgement.

The two buttons at the far-right of the toolbar, the **Show Changes/Show All** toggle button and the **Acknowledge** button, help you to find out what changes other users have made.

Note: Your system administrator can configure email notifications that alert you to changes that are made to test settings. Email alerts include links that take you directly to a view of recent changes.

Creating Filters

To create a filter:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Filters** tab to view the list of available filters.
3. Click **New Filter**. The **New Filter** dialog box appears.
4. Type a **Name** for the new filter.

   This name will be displayed in list boxes when the filter becomes available.
5. Select a **Category** from the list to make the filter available in the **Requirements**, **Tests**, or **Execution Planning** area of Silk Central.
6. *Optional:* Type a **Description** for the new filter.
7. *Optional:* Check the **Visible to other users** check box to allow other users to see the filter.
8. *Optional:* Check the **Editable by other users** check box to allow other users to edit the filter.

   Note: If **Visible to other users** and **Editable by other users** are checked, the filter is public. To delete non-public (private) filters, you have to be the owner of the filter or you need the **Delete private filters of other users** permission.
9. Select a category of filter criteria from the **Selection criteria** list. The available categories depend on the general filter category you have selected.

   Note: You can combine filters by selecting **Nested Test Filter** or **Nested Requirement Filter**. Selecting one of these categories allows you to include an existing filter in your new filter.
10. Select a **Property**, **Operator**, and **Value** for the filter from the respective lists.

Property Available properties depend on the filter category that you have selected in the previous step. Defines the property for which you are defining a filter setting. If you have selected an attribute category, the property list includes custom attributes to query against.

Operator Specifies the filter operator. The operator depends on the property type you have selected. For example, if you have selected a property that is based on a string field type, the following operators are available:

Operator	Description
=	The string equals the defined value.
not	The string is different than the defined value.
contains	The string contains the defined value.
not contains	The string does not contain the defined value.

Value Enter the value that you want to filter out. Depending on the property type that you have selected, values will either be strings that you can enter into the field, or a selection of predefined values that you can select from the list box.

11. *Optional:* Click **More** if you want to add more than one filter category to the new filter. Repeat this procedure to define new categories.

    Note: If you define more than one filter category, you must define whether the categories need to be fulfilled in addition to the existing categories (AND relationship), or if the filter returns true when one of the filter categories is fulfilled (OR relationship). Select either **AND** or **OR** to define the filter category relationship. You cannot define nested AND, OR relationships.

12. *Optional:* To remove filter categories, click **Fewer**. This removes the last filter category.
13. Click **OK** to save the new filter, or click **Cancel** to abort the operation.

Creating Advanced Filters

Advanced custom filters enable you to combine simple filters to create complex filters that apply multiple filter criteria simultaneously.

To create an advanced custom filter:

1. In the menu, select the appropriate area: **Requirements**, **Tests**, or **Execution Planning**.
2. Click (**New Filter**) in the toolbar. The **New Filter** dialog box appears.
3. If necessary, click **Advanced** to show the whole dialog box.
4. Click **More** to display a second set of filter-parameter fields with which you can define a second set of filter parameters.
5. Select a logical operator for the application of the filtering queries. For example, with the operator `and` filtered elements must meet both sets of criteria and with the operator `or` filtered elements must meet one, but not both, of the criteria sets.
6. To delete a filter-parameter string, click .
7. To display additional filter-parameter fields and create additional filter queries, click **More**. To remove excess filter-parameter sets, click **Fewer**.

Applying Filters

After you have created and stored a custom filter, you can apply that filter to the selected tree. Custom filters can be applied for requirements, tests and execution plans. Only elements that meet applied filter criteria are displayed in the tree.

Note: Filtered requirements are returned in read-only form and can not be edited. The **Edit Properties** button is disabled for filtered requirements.

To apply a stored filter:

1. In the menu, select the appropriate area: **Requirements**, **Tests**, or **Execution Planning**.
2. Select the desired filter from the **Filter** list box on the toolbar.
3. All elements that meet the filter's criteria are displayed.

    Note: To remove filtering and display all elements, select **<No Filter>** from the **Filter** list box on the toolbar.

Editing Filters

To edit a filter:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

    Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.

2. Click the **Filters** tab to view the list of available filters.

3. Click the name of the filter you want to edit. The **Edit Filter** dialog box displays.
4. Edit the **Name** and **Description** of the filter.
5. Select a category of filter criteria from the **Selection criteria** list. The available categories depend on the general filter category you have selected.

   Note: You can combine filters by selecting **Nested Test Filter** or **Nested Requirement Filter**. Selecting one of these categories allows you to include an existing filter in your new filter.
6. Select a **Property**, **Operator**, and **Value** for the filter from the respective lists.

   Property Available properties depend on the filter category that you have selected in the previous step. Defines the property for which you are defining a filter setting. If you have selected an attribute category, the property list includes custom attributes to query against.

   Operator Specifies the filter operator. The operator depends on the property type you have selected. For example, if you have selected a property that is based on a string field type, the following operators are available:

Operator	Description
=	The string equals the defined value.
not	The string is different than the defined value.
contains	The string contains the defined value.
not contains	The string does not contain the defined value.

   Value Enter the value that you want to filter out. Depending on the property type that you have selected, values will either be strings that you can enter into the field, or a selection of predefined values that you can select from the list box.
7. Click **OK** to save the edited filter definition.

Copying Filters

Create a new filter by copying an existing one and changing the settings.

1. In the menu, select the appropriate area: **Requirements**, **Tests**, or **Execution Planning**.
2. In the toolbar of the selected area, select a filter from the list box.
3. Click . The **Edit Filter** dialog box opens with the settings of the original filter.
4. Edit the properties of the filter and click **OK**.

Deleting Filters

To delete a filter:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Filters** tab to view the list of available filters.
3. Click **Delete Filter** for the filter that you want to delete. A confirmation dialog box displays, asking you you to confirm the deletion.
4. Click **Yes** to delete the selected filter or **No** to abort the operation. If you click **Yes**, you will be returned to the filters list and the deleted filter is no longer displayed.

Administration

Learn how to configure the system, the application, and the advanced settings to customize Silk Central.

Getting Started

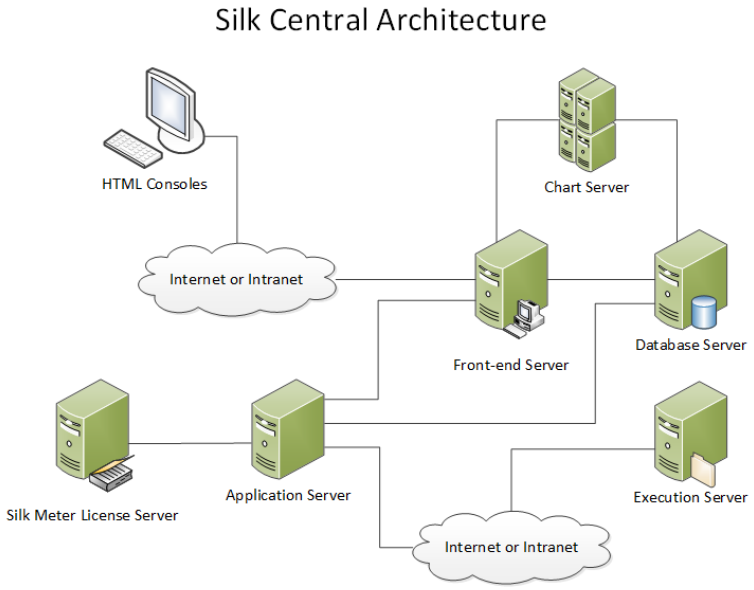
This section provides overview information on how to work with Silk Central.

Silk Central Architecture

The following sections describe the Silk Central components.

- Overview
- Front-End Server
- Application Server
- Execution Server
- Chart Server
- Database Server
- Silk Meter License Server

Overview



Front-End Server

The front-end server is responsible for the graphical user interface. This server is based on HTML and is accessible from any Web browser, such as Internet Explorer or Firefox. A user sends an appropriate HTTP request to the front-end server and receives a login page for authentication. After successful login, the user can use the corresponding application based on the respective user rights. The front-end server can operate as a stand-alone HTTP server, or it can be attached to a Web server, such as IIS via ISAPI filter. The front-end server uses port 19120. For secure connections with SSL, the server also uses port 443.

Application Server

The application server synchronizes tasks such as the distribution of schedules, control of execution servers, and management of database configuration. These tasks require a centralized agency to ensure the consistent, reliable behavior of the application. The application server also evaluates results, saves them to the database, and sends alerts based on success conditions. The application server uses port 19122.

Execution Server

The execution server executes automated tests that are scheduled by authorized users. Users are responsible for the proper configuration of execution servers and additional resources that are required for test executions. The system allows for the installation and configuration of multiple execution servers working independently of one another. The execution server uses port 19124. For secure connections with SSL, the server also uses port 19125.

Chart Server

The chart server is used to generate charts that are viewed in reports. The system allows for the configuration of a pool of chart servers. A built-in load balancing mechanism uses the pool to distribute chart generation. The chart server is also used to generate reports and deliver them directly to the end-user for viewing within a browser. The chart server uses port 19126.

Database Server

System persistency is implemented using a RDBMS (Relational Database Management System). The database server uses ports 1433 and 1521.

Silk Meter License Server

Silk Meter, the licensing software that accompanies Silk products, determines the Silk Central-application functionality that you may access. For more information on licensing, refer to the installation guide of the respective product. Silk Meter uses port 5461.

Agent Computers

Silk Performer and Silk Test Classic agent computers are assigned to particular Silk Performer or Silk Test Classic projects from the pool of agent computers that are available to the controller computer. In combination with Silk Central, the controller computer acts as an execution server.

Silk Performer Agents	Silk Performer agent computers host the virtual users that are run during load tests. As many agent computers as necessary can be added to a Silk Performer project so that the required quantity of virtual users can be run. Configuration of agents is done through Silk Performer. Refer to the Silk Performer documentation for details on configuring agents.
Silk Test Classic Agents	The same rules that apply to Silk Performer agents apply to Silk Test Classic agents, except Silk Test Classic agents host Silk Test Classic tests.

Configuring the Application Server

After installing a Silk Central application, there are a number of initial steps that must be performed by the system administrator before you can begin working with the software. The topics in this section describe each of the necessary steps.

Note: You must login as an administrator to perform the actions outlined in this section.

Application Server Location

The application server synchronizes tasks such as the distribution of schedules, control of execution servers, and management of database configuration. Before you can start working with Silk Central applications, you need to specify the location of the application server.

Specifying a Location for the Application Server

When you use the `Standard Setup` option for installing a Silk Central application, you do not need to specify an application server location. Setup automatically configures the localhost to be the application

server. In this case you can skip this procedure. For additional information on setup options, see the application's installation instructions.

To specify a location for the application server:

1. Once you have installed the Silk Central software, connect to Silk Central using a Web browser.

   Tip: If you installed ISAPI Web Server, use `http://<Web-server-name>/login` as the URL. If you installed the stand-alone Web Server, use `http://<Web-server-name>:19120/login` as the URL. The stand-alone Web server uses port 19120 by default.

   You will receive a confirmation stating that the application server connection has not yet been defined.
2. Enter the **Host** or **IP address** and the **Port** of the application server.

   The application server is the computer where you installed Silk Central's application server component. The default port is 19122.
3. Click **Login** to proceed. If your specifications are correct and the respective computer is running with the installed software, you will be returned to the login page.

The **Database Administration** page displays.

Configuring the System

This section describes how to make the initial configurations that are required to work with Silk Central. These configurations must be performed by an administrator.

Secure Web Server Connections with SSL

If you intend to work using a secure connection and have opted to install the ISAPI Web Server, then you must configure Microsoft Internet Information Services (IIS) to use the Secure Sockets Layer (SSL). You must first obtain a certificate from a Certificate Authority to gain access to the Secure Sockets Layer.

The Silk Central default standalone Web server (Tomcat) can also be configured to use SSL (Secure Sockets Layer).

Configuring Secure Connections with Microsoft IIS

To use Silk Central with Secure Sockets Layer (SSL), you must first obtain a certificate from a *Certificate Authority* and then apply the certificate to Internet Information Services (IIS). For detailed information on SSL enablement for sites, refer to the IIS documentation or contact Micro Focus SupportLine.

Configuring Secure Connections with Tomcat Web Server

You need to be familiar with Tomcat and SSL configuration to perform this task.

Set up the Silk Central default standalone Web server (Tomcat) to use SSL (Secure Sockets Layer).

To enable secure communication with Silk Central:

1. Log on to the Silk Central server as an Administrator.
2. Stop all Silk Central services (application, chart, execution, and front-end servers).
3. To generate a unique certificate for your Tomcat Web server, execute the following command in the Silk Central Java directory:`C:\Program Files\Silk\Silk Central 15.5\lib\jre\bin\keytool -genkey -alias tomcat -keyalg RSA`.
4. Specify a keystore password value of `changeit`.

   If you desire to use a unique password, specify it here.
5. The keytool command prompt sequence will be similar to the following. Respond accordingly.

```
What is your first and last name?
[Unknown]: hostname.domain.com
What is the name of your organizational unit?
```

```
[Unknown]: IT Department (if that is the group creating the certificate)
What is the name of your organization?
[Unknown]: Company Name
What is the name of your City or Locality?
[Unknown]: City
What is the name of your State or Province?
[Unknown]: State
What is the two-letter country code for this unit?
[Unknown]: US
Is CN=xxxx, OU=xxxxxxx, O=xxxxxx, L=xxxxxxxxx, ST=xxxxx, C=xx correct?
[no]: Yes (These values will reflect what you entered previously)
Enter key password for <tomcat> same as keystore password
(RETURN if same as keystore password):
```

A file named `.keystore` is generated in the profile folder of the user you are logged in with, for example `C:\Users\Administrator`.

Note: By default Tomcat will look for your Keystore with the file name `.keystore` in the home directory with the default password `changeit`. The home directory is generally `/home/user_name/` on Unix and Linux systems, and `C:\Documents and Settings\user_name\` or `C:\Users\user_name\` on Microsoft Windows systems.

6. Move the `.keystore` file to a safe location of your choice.

Note: On some operating systems, Tomcat may encounter problems if you use a location that contains space characters.

7. Edit the Tomcat configuration file:

   Locate the `server.xml` file in the `conf\frontendserver\conf` subdirectory of the directory where Silk Central is installed.

8. Open the file in a text editor such as Notepad. Comment out the current `Connector` entry and add the following text:

```
<!-- Define a SSL Coyote HTTP/1.1 Connector on port 8443 -->
<Connector port="8443" minSpareThreads="25" URIEncoding="UTF-8"
compression="on"
compressableMimeType="text/html,text/xml,text/plain,text/css,application/
javascript,application/xml"
debug="0" scheme="https" secure="true" SSLEnabled="true" clientAuth="false"
sslProtocol="TLS" keystorePass="changeit" keystoreFile="C:\<file location>
\.keystore"/>
```

Note: Make sure that the path specified in the `keystoreFile` parameter matches the location that you copied the `.keystore` file to. If you choose to use a different password other than `changeit`, you will need to add the `keystorePass` parameter to the `server.xml` file entry:

```
<Connector port="8443" minSpareThreads="25" URIEncoding="UTF-8"
compression="on"
compressableMimeType="text/html,text/xml,text/plain,text/
css,application/javascript,application/xml"
debug="0" scheme="https" secure="true" SSLEnabled="true"
clientAuth="false"
sslProtocol="TLS" keystorePass="changeit" keystoreFile="C:\<file
location>\.keystore"
keystorePass="newpassword"/>
```

For more information, visit the *Apache Tomcat 7 Documentation*.

9. *Optional:* Change the **Port** of the front-end server in the `<Connector>` tag from `19120` to the desired port.

10. To enable BIRT reports on SSL environments, edit the registry key of the chart server in `HKEY_LOCAL_MACHINE\SOFTWARE\Apache Software Foundation\Procrun 2.0\SCCChartServer\Parameters\Java\Options`. Add the following text to the key:

```
-Djavax.net.ssl.trustStore=C:\<file location>\.keystore
-Djavax.net.ssl.trustStorePassword=<Password>
```

    The `<Password>` is the `keystorePass` you have defined.

11. Save the file and close the editor.
12. Restart all services that were stopped at the beginning of this procedure.
13. Log on to your Silk Central server using HTTPS: `https://hostname:8443/login`.

Application Server Location

The application server synchronizes tasks such as the distribution of schedules, control of execution servers, and management of database configuration. Before you can start working with Silk Central applications, you need to specify the location of the application server.

Specifying a Location for the Application Server

When you use the `Standard Setup` option for installing a Silk Central application, you do not need to specify an application server location. Setup automatically configures the localhost to be the application server. In this case you can skip this procedure. For additional information on setup options, see the application's installation instructions.

To specify a location for the application server:

1. Once you have installed the Silk Central software, connect to Silk Central using a Web browser.

    Tip: If you installed ISAPI Web Server, use `http://<Web-server-name>/login` as the URL. If you installed the stand-alone Web Server, use `http://<Web-server-name>:19120/login` as the URL. The stand-alone Web server uses port 19120 by default.

    You will receive a confirmation stating that the application server connection has not yet been defined.
2. Enter the **Host** or **IP address** and the **Port** of the application server.

    The application server is the computer where you installed Silk Central's application server component. The default port is 19122.
3. Click **Login** to proceed. If your specifications are correct and the respective computer is running with the installed software, you will be returned to the login page.

The **Database Administration** page displays.

LDAP Authentication

Configure LDAP authentication to enable Silk Central logins through an LDAP server.

Lightweight Directory Access Protocol (LDAP) is an open network protocol standard that is designed to provide access to directory services. LDAP provides a mechanism for querying and modifying information that resides in a directory information tree (DIT). A directory information tree typically contains a broad range of information about different types of network objects including users, printers, applications, and other network resources.

Silk Central LDAP Integration

The most important aspect of LDAP integration in Silk Central is user authentication. In most directories it is not possible to retrieve a user's password, so LDAP must be accessed each time a user needs to be authenticated.

Silk Central LDAP integration supports plain-text authentication and SSL authentication. The directory service must either allow anonymous queries or a user with read rights on the directory must be provided.

The following properties must be provided for LDAP servers:

- LDAP server URL
- LDAP port
- Base DN (root node, base distinguished name)
- *Optional:* username and password
- Filter, for querying user (object)

LDAP Authentication Logic

Standard mode authentication means that a user can only authenticate against LDAP, if an LDAP server is defined and active. Mixed mode authentication means that a user can login with either LDAP or local credentials.

Note: For either authentication mode, a user can only be logged in when their username exists in the Silk Central database.

Standard Mode Authentication

Standard mode authentication is enabled when at least one LDAP server is active. When no LDAP server is defined, users will only be able to login with local credentials. Each defined LDAP server is checked to determine if a user (with specific username and password) can be authenticated. Access is granted when authentication succeeds on one of the servers.

Mixed Mode Authentication

When no LDAP server is defined, users will only be able to login with local credentials. If at least one LDAP server is active and a user account is set to use mixed mode authentication, each defined LDAP server is checked to determine if a user (with specific username and password) can be authenticated. If the user is unknown on all defined LDAP servers, then local database authentication is attempted. Access is denied when a user is also unknown based on local credentials. If a user is known on an LDAP server, but the credentials are incorrect, access is denied.

Adding LDAP Servers

To configure an LDAP server for usage with Silk Central:

1. In the menu, click **Administration** > **System Settings**.
2. Click the **LDAP Servers** tab.
3. Click **New LDAP Server**. The **New LDAP Server** dialog box appears.
4. Type a **Name** for the server and optionally a **Description**.
5. Check the **Active** check box to activate the server for use with Silk Central.
6. Type the **Hostname** or IP-address of the LDAP server and the **Port** used for the LDAP service.
7. Check the **Use SSL** check box to connect to the server through SSL.
8. *Optional:* In the **Bind DN** field, type the domain name of the user who is to be used to bind to the LDAP service. Type the **Password** of the user defined by **Bind DN**.
9. Type the **Base DN** root for LDAP queries and the **Filter** that is to be used for querying LDAP.
10. Click **Test** to perform a test connection to the LDAP server.

    For more information, see *Testing LDAP Servers*.
11. Click **OK** to save your settings.

Editing LDAP Servers

To edit an LDAP server profile:

1. In the menu, click **Administration** > **System Settings**.
2. Click the **LDAP Servers** tab.
3. Click the name of the LDAP server profile you want to edit. The **Edit LDAP Server** dialog box appears.
4. Edit the **Name** and **Description** of the server as required.
5. Check the **Active** check box to activate the server for use with Silk Central.
6. Edit the **Hostname** or IP-address of the LDAP server and the **Port** used for the LDAP service as required.
7. Check the **Use SSL** check box to connect to the server through SSL.
8. *Optional:* In the **Bind DN** field, modify the domain name of the user who is to be used to bind to the LDAP service as required. Enter the **Password** of the user defined by **Bind DN**.
9. Edit the **Base DN** root for LDAP queries and the **Filter** that is to be used for querying LDAP as required.
10. Click **Test** to perform a test connection to the LDAP server.

    For more information, see *Testing LDAP Servers*.
11. Click **OK** to save your settings.

Testing LDAP Servers

To test the connection to an LDAP server:

1. When adding or editing an LDAP server profile in Silk Central, the **Add LDAP Server** dialog box, respectively the **Edit LDAP Server** dialog box displays a **Test** button.
2. Click **Test** to display the **Test LDAP Configuration** dialog box.
3. In the **Test username** field, enter a username to be used for testing LDAP authentication.
4. Fill in the **Test password** associated with the user who is to be used for testing LDAP authentication.
5. Click **Test** to execute an authentication test.

   Note: LDAP error codes are included when tests fail.

   A dialog box shows you whether or not the test was successful.
6. Click **Close** to return to the **Add LDAP Server** dialog box, respectively the **Edit LDAP Server** dialog box. If the test connection was not successful, edit your settings or ask your system administrator for assistance. Then start over at step 2 again.

Deleting LDAP Servers

To delete an LDAP server profile:

1. In the menu, click **Administration** > **System Settings**.
2. Click the **LDAP Servers** tab.
3. If the LDAP server is active, you need to deactivate it before you can delete it. Click the name of the LDAP server profile that you want to delete. The **Edit LDAP Server** dialog box appears.
4. Uncheck the **Active** check box to deactivate the server and click **OK**.
5. Click ✕ (**Delete**) in the **Actions** column of the LDAP server you want to delete.
6. Click **Yes** to confirm the deletion.

LDAP Servers Page

Administration > **System** > **LDAP Servers**

The **LDAP Servers** page lists all configured LDAP servers. Use this page to manage your LDAP servers.

In this page you can perform the following actions:

- Click **New LDAP Server** to configure a new LDAP server.
- Click an existing LDAP server in the list to edit the settings.
- Click ✕ (**Delete**) in the **Actions** column to delete an LDAP server (you need to deactivate the LDAP server beforehand).

New LDAP Server Dialog Box

Note: The **Edit LDAP Server** dialog box contains the same items as the **New LDAP Server** dialog box.

The dialog box includes the following items:

Item	Description
Name	Specifies the name of the LDAP server as it should appear in the Silk Central GUI. You can define any name for the LDAP server; this field has no impact on the actual LDAP settings.
Description	A description of the LDAP server. You can enter any text for the description of the LDAP server; this field has no impact on the actual LDAP settings.
Active	Activates the LDAP server, if checked. If unchecked, the LDAP server's services are not available to Silk Central.
Hostname	The LDAP server URL.
Port	The LDAP port. The default port is `389`. When using SSL, the default LDAP port is `636`.
Use SSL	Defines whether Silk Central connects to the LDAP server through SSL (if checked) or without SSL (if unchecked). This check box is closely related to the settings defined in the **Port** field.
Bind DN (optional)	The distinguished name of the user who is to be used to bind to the LDAP service. This user must have read rights on the directory from the given **Base DN** root. If this field is left empty, anonymous access will be used, except for LDAP servers that do not support anonymous access.
Password (optional)	The password of the user defined in the **Base DN** field. This is not required when anonymous access is allowed.
Base DN	Base Distinguished Name (DN) root node for LDAP queries. For example `DC=comp,DC=net`.
Filter	The filter that is to be used for querying LDAP. Filters must contain a placeholder enclosed in braces. Additionally to the default placeholder `{%username}` Silk Central also supports more complex expressions. Example 1: `(sAMAccountName={%username})` Example 2: `(sAMAccountName = {user.firstName.substring(0, 1).toLowerCase()} {user.lastName.toLowerCase()})` The second example builds the `sAMAccountName` by appending the lowercase representation of the user's last

Item	Description
	name to the lowercase representation of the first character of the user's first name.

Silk Performer Load-Test Agent Clusters

In addition to assigning workload to individual agents, you have the option of assigning Silk Performer workload to clusters of agents with defined capabilities. Silk Performer's dynamic workload-assignment functionality matches specific load-test requirements to the replay capabilities of available agent computers at execution time. The capabilities that are defined for test agents in Silk Performer are used to optimize workload-to-agent assignment. For example, if a test requires a workload that only an agent computer with a SAPGUI client can deliver, then dynamic workload-assignment functionality can ensure that the test's workload is assigned only to available agents with SAPGUI clients. Additionally, the percentage of required workload or virtual users that can be allocated to each agent can be configured, thereby ensuring that agents are not pushed beyond their capacities.

Upon execution of a Silk Performer test, a Silk Central load-test agent-clusters XML file is checked out of the appropriate execution server and used for dynamic workload assignment during execution. You must specify the location of your project's load-test agent-clusters XML file by way of **Administration** > **System** settings.

An advantage of dynamic assignment of workload to load-test agent clusters is that successful execution of tests is not contingent on maintaining a static test-execution environment. Silk Performer can dynamically assign an unavailable agent's workload to an available agent in the same cluster that has the same capabilities. This feature is of particular value when Silk Performer load tests are managed and executed based on predefined schedules in Silk Central. The manner in which workload is balanced across agents and the health of individual agents are not issues to consider from the Silk Central perspective.

For details regarding dynamic workload assignment, refer to the *Silk Performer Help*.

Uploading Load Test Agent Cluster Files

Describes how to add or change your project's load-test agent-clusters file in support of Silk Performer dynamic workload assignment.

To change your project's agent-clusters file definition:

1. In the menu, click **Administration** > **System Settings**.
2. Click the **Load Test Agent Clusters** tab.
3. Click **Upload**.
4. On the **Upload Agent Clusters File** dialog box, browse to the location of the agent-cluster file on your local disk.

   When you upload the file, it is displayed in the **Load Test Agent Clusters** page.
5. Click **OK** to confirm your selection.

Deleting Load Test Agent Clusters Files

Delete a load-test agent clusters file to remove it from the application server.

To delete a load-test agent clusters file:

1. In the menu, click **Administration** > **System Settings**.
2. Click the **Load Test Agent Clusters** tab.
3. Click **Delete**.
4. Click **Yes** to confirm.

Editing Load Test Agent Cluster Files

To edit your project's agent-clusters file definition:

1. In the menu, click **Administration** > **System Settings**.
2. Click the **Load Test Agent Clusters** tab.
3. Click the name of the load-test agent-clusters file that you want to change.
4. Donwload the file.
5. Edit the file in an editor.
6. Upload the file.
   For more information, see *Uploading Load Test Agent Cluster Files*.

Load Test Agent Clusters Page

Administration > **System Settings** > **Load Test Agent Clusters**

The **Load Test Agent Clusters** page shows the currently configured load-test agent-clusters XML file. Use this page to manage Silk Performer load-test agent-cluster files in support of dynamic workload assignment.

From this page you can perform the following actions:

- Click **Upload** to upload a load-test agent-clusters XML file.
- Click **Delete** to remove an existing load-test agent-clusters XML file.
- Click the name of the load-test agent-cluster file to download and edit the file.

Configuring the Application

This section contains conceptual information about user accounts, projects, locations, and execution servers. It also covers the administration of custom reports and managing uploaded files, and the configuration of other common entities.

Once you have completed the initial configuration of Silk Central (system configuration), this section will guide you through the steps required to set up user accounts, projects, locations, execution servers, and more. These tasks must be performed by an administrator.

User Roles and Permissions

When working with Silk Central, tasks are assigned to designated groups of users who have access to assigned projects. Within groups, users are granted specific roles within those projects. User permissions are configured based on user role type and group membership. This topic defines each permission type and details the specific permissions that are associated with each user role.

Each user account can belong to one or multiple groups. A group specifies which roles a user has within that group. Groups are assigned to projects. So the permissions that each individual user has are derived from the group/role assignments that have been defined for them. Defined permissions apply only to the projects that are assigned to the groups in which each user has a group/role assignment.

User Roles

There are seven predefined user roles:

- SuperUser
- Administrator
- Project Manager
- Test Manager
- Tester
- Analyst

- Reporter

These roles cannot be modified or deleted. They can however be copied and thereby used as the basis for customized roles.

SuperUser

The SuperUser role is a special role that is granted all privileges across Silk Central applications.

Administrator

Administrator tasks include the configuring of application-, Web-, and chart-server locations; setting up and maintaining repositories and notification settings; creating accounts; configuring locations and execution servers, and others.

Administrators are granted all privileges across Silk Central and Issue Manager.

Project Manager

Project Managers maintain the projects for which they are responsible. Project Managers do not have write access to the Silk Central **Administration** unit. Project Managers can only access the projects to which they have been assigned as Project Managers, where they have full write access to all project-related features. Project Managers also have all Issue Manager permissions for projects that are assigned to them.

Test Manager

Test Manager responsibilities include the planning and execution of tests, including the deletion of tests. Test Managers also have full access to libraries of shared steps and full read access to the **Requirements** area in Silk Central.

Tester

The Tester role relates to Silk Central privileges. The Tester's tasks include the planning and execution of tests—though Testers cannot delete tests. Testers also have full read access to the **Requirements** area, and can view, create, and edit all objects in libraries of shared steps.

Analyst

Analysts analyze the results of projects that have been assigned to them. They cannot modify project settings or schedules and have read-only privileges.

Reporter

In addition to having all the rights of Analysts, Reporters additionally have the right to edit and delete reports in *Advanced mode*. Advanced mode allows reporters to enter, modify, and delete SQL statements for advanced reports. For details on advanced reports, refer to the Silk Central application Help.

Adding User Roles

To add a user role:

1. In the menu, click **Administration** > **User Management**.
2. Click the **Roles** tab.
3. Click **New Role**.

   The **New Role** page displays.
4. Type a **Name** for the new role.
5. *Optional:* Type a **Description** for the role.

6. In the **Permission Settings** list, check the **Allow** text box for all permissions you want to grant to this role.

   Note: Checking a top-level parent task automatically checks all child tasks of that parent. When some but not all child tasks of a parent task are selected, the parent task is checked with a grayed-out check mark, indicating partial permissions in that area.
7. Click **Save** to save your permission settings for this role.

Editing User Roles

Note: Predefined user roles cannot be edited. Custom user roles can be edited.

To edit a user role:

1. In the menu, click **Administration** > **User Management**.
2. Click the **Roles** tab.
3. Click the name of the role that you want to edit in the **Roles** list.

   The **Edit Role** page displays.
4. Edit the **Name** of the role as required.
5. Edit the **Description** of the role as required.
6. In the **Permission Settings** list, check the **Allow** check boxes of all permissions that you want to grant to this role. Uncheck any selected permissions that are not to be granted to this role.

   Note: Checking a top-level parent task automatically checks all child tasks of that parent. When some but not all child tasks of a parent task are selected, the parent task is checked with a grayed-out check mark, indicating partial permissions in that area.
7. Click **Save** to save your permission settings for this role.

Copying User Roles

Tip: Copying existing user roles is the first step in creating a custom user role. After copying an existing role, rename it and edit its permissions to meet your needs.

To copy a user role:

1. In the menu, click **Administration** > **User Management**.
2. Click the **Roles** tab.
3. In the **Actions** column of the user role that you want to copy, click **Duplicate Role**.

   The copy of the role then displays in the list of user roles where you can rename it and customize it as required.

Deleting User Roles

Note: Predefined user roles cannot be deleted. Custom user roles can be deleted.

To delete a user role:

1. In the menu, click **Administration** > **User Management**.
2. Click the **Roles** tab.
3. In the **Actions** column of the user role that you want to remove, click **Delete**. A confirmation dialog box displays.
4. Click **Yes** to confirm the operation; click **No** to abort. If you choose **Yes**, you will be returned to the list of user roles where the deleted role will no longer be listed.

Roles Settings Page

Administration > **User Management** > **Roles**

The **Roles Settings** page is used to configure user roles. The page displays the following items:

Item	Description
Actions	Click to duplicate a role and use it as the basis for a new, custom role. Click to delete a user role.
Name	The name of the user role as it displays in the GUI.
Allow New Assignment	Click to allow or prevent an existing user role from accepting new user assignments. This is useful when a user role has been discontinued while some user accounts still retain the role.
Description	Description of the user role.
Created On	Date the role was created.
Created By	User who created the role.

Permission Definitions

To display the permissions in Silk Central: In the menu, click **Administration** > **User Management**. Click the **Roles** tab. Click on a role in the grid. The permissions for that role display.

This section explains the permissions that govern user ability to perform tasks and access secure areas within Silk Central. There is a separate list for each permission category.

Note: Permissions for predefined roles cannot be edited.

Requirements Permissions

The following permissions are available for requirements:

	Administrator	Project Manager	Analyst	Tester	Test Manager	Reporter
View requirements		X	X	X	X	X
Manage requirements		X				
Delete requirements		X				
Manage requirements management integrations		X			X	
Delete requirements		X				

	Administrator	Project Manager	Analyst	Tester	Test Manager	Reporter
management integrations						

Libraries Permissions

The following permissions are available for libraries:

	Administrator	Project Manager	Analyst	Tester	Test Manager	Reporter
View libraries	X	X	X	X	X	
Manage libraries			X	X		
Delete libraries				X		

Tests and Executions Permissions

The following permissions are available for tests and executions:

	Administrator	Project Manager	Analyst	Tester	Test Manager	Reporter
View tests and executions		X	X	X	X	X
Manage tests and executions				X	X	
Delete tests and executions					X	
Start and finish executions				X	X	
Execute tests				X	X	
Synchronize manual test runs				X	X	
Delete test runs and execution plan runs				X	X	
Manage source control integrations		X			X	
Delete source control integrations		X			X	

Manual Execution Planning Permissions

The following permissions are available for manual execution planning:

	Administrator	Project Manager	Analyst	Tester	Test Manager	Reporter
View testing cycles and configurations		X	X	X	X	X
Manage testing cycles and configurations					X	

	Administrator	Project Manager	Analyst	Tester	Test Manager	Reporter
Delete testing cycles and configurations					X	

Issues Permissions

The following permissions are available for issues:

	Administrator	Project Manager	Analyst	Tester	Test Manager	Reporter
Manage issue tracking integrations		X			X	
Delete issue tracking integrations		X			X	

Quality Goals Permissions

The following permissions are available for quality goals:

	Administrator	Project Manager	Analyst	Tester	Test Manager	Reporter
View quality goals		X	X	X	X	X
Manage quality goals		X			X	
Delete quality goals		X			X	

Reports Permissions

The following permissions are available for reports:

	Administrator	Project Manager	Analyst	Tester	Test Manager	Reporter
View reports		X	X	X	X	X
Manage reports		X		X	X	X
Manage advanced reports						X
Delete reports		X		X	X	X
Manage shared global reports						X
Delete shared global reports						X

Shared Global Report Permissions

Because shared global reports are available in all projects for all users, user roles that are able to update and delete them require special permissions: **Manage shared global reports** and **Delete shared global**

reports. Non-shared global reports can be updated and deleted by user roles with the standard report permissions for updating and deleting reports. This implies the following special scenarios:

- The option **Share this report with other users** is disabled in global reports and folders if the user does not have the **Manage shared global reports** permission
- When pasting a copied shared report into the **Global Reports** tree without the **Manage shared global reports** permission, the pasted report is set to non-shared

Projects Permissions

The following permissions are available for projects:

	Administrator	Project Manager	Analyst	Tester	Test Manager	Reporter
Manage projects		X			X	
Delete projects		X			X	

Project Settings Permissions

The following permissions are available for project settings:

	Administrator	Project Manager	Analyst	Tester	Test Manager	Reporter
View project settings		X	X	X	X	X
Manage project settings		X		X	X	
Delete project settings		X			X	
Manage filters		X		X	X	
Delete filters		X		X	X	
Modify private filters of other users		X			X	
Delete private filters of other users		X			X	

Administration Permissions

The following permissions are available for administration:

	Administrator	Project Manager	Analyst	Tester	Test Manager	Reporter
View system settings	X	X			X	X
Manage system settings	X					
View administration settings	X	X			X	X
Manage administration settings	X					

	Administrator	Project Manager	Analyst	Tester	Test Manager	Reporter
Delete administration settings	X					
View and delete log files	X	X			X	X
Manage execution servers	X					
Delete execution servers	X					

Dashboard Panel Permissions

To view or edit the content of a certain dashboard panel, you need the following permissions:

Panel	Required permission
Assigned Issues	**View tests and executions**.
Custom Information	**Manage projects** required for editing. No permission required for viewing.
Introduction	No permission required.
Issue Life Cycle	**View project settings**.
Issues Created per Tester	**View tests and executions**.
Manual Tests Assigned to Me	**Execute tests**.
Planned vs. Actual Execution Time	**View testing cycles and configurations**.
Quality Goal Progress	**View quality goals**.
Report Subscription	No permission required.
Requirements Coverage Status	**View requirements**.
Status of Currently Running Manual Tests	**View tests and executions**
Testbook	No permission required.
Testing Cycle Progress	**View testing cycles and configurations**.
Testing Cycle Result Summary	**View testing cycles and configurations**.
Testing Cycle Timeline	**View testing cycles and configurations**.
Testing Progress Across Testing Cycles	**View testing cycles and configurations**.
Volatile Tests	**View tests and executions**.

User and Group Accounts

A user account must be created for each user working with Silk Central. One or more groups of users are assigned to specific projects. Only with a user account, a user role, and a group assignment can a user work with a Silk Central project.

Maintaining User Accounts

User accounts track login data and configuration settings for individual users. They also enable user login. User accounts are typically assigned to group accounts with one or more specific user roles for specific projects. The SuperUser is the only user role that can, among other things, configure the application-, Web-, and chart server locations; and set up and maintain repositories and notification settings.

Caution: Because the *SuperUser* account `admin` has all administrative privileges, you should immediately create a new password for this user to prevent unlimited access to these privileges. For more information on changing the password, see **Changing the Password of the System Administrator Account**.

Adding User Accounts

To add a user account:

1. In the menu, click **Administration** > **User Management**.
2. Click the **Accounts** tab.

   The page displays all available user accounts. When you access this page for the first time, the *SuperUser* account `admin` is the only user listed.
3. Click **New User**. The **Add new user account** page displays.
4. Type a username and password for the user. Type the password a second time to confirm it.
5. Check the **Mixed mode authentication (LDAP)** check box to enable both LDAP and local-credential based authentication.
6. Set the login to **Locked** if you want to prevent the user from logging in.
7. Type the user's first name, last name and email address.
8. Type the user's local time zone and select a date format, a short date format, and the first day of the week.
9. Type the **Page refresh time** in seconds, the **CSV separator string**, and a **Default execution server**.
10. Select a group and role definition from the respective list boxes.
11. Click **Add Assignment** to add the group and role combination to the user account.
12. Repeat the previous two steps to assign all desired group and role combinations to the user account.
13. To remove a group and role combination from the current user account, click the **Delete** icon in the **Actions** column.
14. Click **Save** to save your settings.

Editing User Accounts

Once a user account is set up you may edit any of the parameters, except the **Login** name.

Note: Changes to a user account become active upon the next login of the changed user account. Please notify the user to logout and login again.

To edit a user account:

1. In the menu, click **Administration** > **User Management**.
2. Click the **Accounts** tab.

   The page displays all available user accounts. When you access this page for the first time, the *SuperUser* account `admin` is the only user listed.
3. Click the **Login** name of the user account that you want to edit. The **Configure existing user** page displays.
4. Edit the password of the user as required. Type the password a second time to confirm it.
5. Check the **Mixed mode authentication (LDAP)** check box to enable both LDAP and local-credential based authentication.
6. Edit other user settings as required.
7. Select a group and role definition from the respective list boxes.
8. Click **Add Assignment** to add the group and role combination to the user account.
9. Repeat the previous two steps to assign all desired group and role combinations to the user account.
10. To remove a group and role combination from the current user account, click **Delete** in the **Actions** column.

11. Click **Save** to save your settings.

Deleting User Accounts

Caution: Deleting a user account is not reversible. You may lock a user account instead, if you want to temporarily make an account unavailable. For additional information about locking user accounts, see *Editing User Accounts*.

To delete a user account:

1. In the menu, click **Administration** > **User Management**.
2. Click the **Accounts** tab.

   The page displays all available user accounts. When you access this page for the first time, the *SuperUser* account `admin` is the only user listed.
3. In the **Actions** column of the user account you want to remove, click **Delete**. A confirmation dialog box displays.
4. Click **Yes** to confirm the operation; click **No** to abort. If you choose **Yes**, you will be returned to the list of user accounts where the deleted account will no longer be listed.

User Settings Page

Administration > **User Management** > **Accounts** > **New/Edit User**

Use the **User Settings** page to configure user accounts. User account settings are closely related to group account settings.

You can click on the name of the user in the menu to access the **User Settings** page for the logged-in user.

Note: You must define at least one group and role assignment to save a user account.

Login Data Item	Description
Login	The username to be stored in the Silk Central repository. If you check **Mixed mode authentication (LDAP)** below, the entered username must match the defined LDAP username.
Password	Enter a valid password for the **Login** that you entered. This password is not related to the LDAP password.
Confirm password	Enter the password again to confirm it.
Mixed mode authentication (LDAP)	Check this check box to enable both LDAP and local-credential based authentication. If an LDAP server exists, not checking this check box results in LDAP-only authentication.
Locked	Check this check box if you want to prevent the user from logging in with the given credentials. This makes the user account inactive.

General Data Item	Description
First name	Type the user's first name. This information does not affect the behavior of Silk Central; it simply tracks user contact information.

General Data Item	Description
Last name	Type the user's last name. This information does not affect the behavior of Silk Central; it simply tracks user contact information.
Email	Type the user's email address. This information is used for notification purposes.
Time zone	The user's local time zone. Time zone information is used to display times and dates in the user's local time zone.
Date format	The selected date format is presented to the user in lists, reports, and in the calendar whenever Silk Central displays a long date format.
Short date format	The selected date format is presented to the user in lists, reports, and in the calendar whenever Silk Central displays a short date format.
First day of week	The first day of the week determines the weekly view in reports.
Page refresh time	The page refresh time in seconds. This setting determines the time interval at which report pages are refreshed automatically when the selected calendar range is set to `last 24 hours`. Type `0` (default value) if you do not want reports to refresh automatically. The page refresh time only affects pages that support automatic page refreshing.
CSV separator string	This string is used as a row separator for the user's downloaded CSV-files. Reports can be downloaded as CSV-files.
Default Execution Server	The default execution server is used for try runs of automated tests.

Group and Role Assignments Item	Description
Group and Role Assignments table	Lists all existing user group/user role assignments of the user. You can also delete group and role assignments by clicking ✕ next to the assignment you want to remove.
Group	Select a group to which the user is to be assigned. This list box lists the user groups that have been defined by a Silk Central administrator.
User role	Select the user role with which the user is to be assigned to the selected group. The list is populated with the pre-defined system roles and the custom user roles.
Add Assignment	Click this button to create a new user group/user role assignment with the group and user role you selected.

Maintaining Group Accounts

Group accounts define access to specific projects. Each user can be associated with one or more group accounts from which they inherit the access rights to the projects that are defined for the selected group account.

Note: Users can be added to group accounts with multiple roles, allowing advanced user permission configuration.

Adding Group Accounts

To add a group account:

1. In the menu, click **Administration** > **User Management**.
2. Click the **Groups** tab.
3. Click **New Group**. The **Add new group account** page displays.
4. In the **Group name** text box, type a group name for the new group.
5. In the **Description** text box, enter a description for the new group.
6. Select a user with a role assignment from the respective list boxes, then click **Add Selection** to add the user and role combination to the new group account.

   Note: Any user roles that have been defined as not accepting new user assignments are not displayed in this list. These settings are controlled through the **Allow New Assignment** buttons at **Administration** > **User Management** > **Roles** .
7. Repeat the previous step to assign all desired user and role combinations to the user account.
8. To remove a user and role combination from the current group account, click ✕ in the **Actions** column.
9. In the **Project Assignment(s)** section you can assign any existing projects to this group.
10. Click **Save**. You will be returned to the **User groups** page where the new group is listed.

Editing Group Accounts

To edit a group account:

1. In the menu, click **Administration** > **User Management**.
2. Click the **Groups** tab.
3. Click the group name of the group account you want to edit. The **Configure existing user group** page displays.
4. In the **Group Name** text box, edit the name as required.
5. In the **Description** text box, edit the group's description as required.
6. Select a user with a role assignment from the respective list boxes, then click **Add Selection** to add the user and role combination to the new group account.

   Note: Any user roles that have been defined as not accepting new user assignments are not displayed in this list. These settings are controlled through the **Allow New Assignment** buttons at **Administration** > **User Management** > **Roles** .
7. Repeat the previous step to assign all desired user and role combinations to the user account.
8. To remove a user and role combination from the current group account, click ✕ in the **Actions** column.
9. In the **Project Assignment(s)** section you can assign any existing projects to this group.
10. Click **Save** to return to the **Groups** page.

Deleting Group Accounts

Describes how to delete a group account.

Note: Before you can delete a group account, you must remove all user and role assignments from the group. For additional information about modifying group accounts, see *Editing Group Accounts*.

To delete a group account:

1. In the menu, click **Administration** > **User Management**.

2. Click the **Groups** tab.
3. In the **Actions** column of the group account you want to remove, click ✕. A confirmation dialog box displays.
4. Click **Yes** to confirm the operation; click **No** to abort. If you choose **Yes**, you will be returned to the list of user accounts where the deleted account will no longer be listed.

Group Settings Page

Administration > **User Management** > **Groups** > **New/Edit Group**

Use the **Group Settings** page to configure group accounts. Group account settings are closely related to user account settings. The page displays the following items:

Item	Description
Group name	Specifies the name of the group as it should display in the GUI. You can define any name for the group.
Description	A description of the group account. You can enter any text for the description.
Account and Role Assignment(s)	Lists all existing user user/role role assignments of the group. You can also delete user and role assignments by clicking ✕ next to the assignment you want to remove.
User	This list box lists the user accounts that have been defined by an administrator. Select a user to be assigned to the group.
User role	The list is populated with the pre-defined system roles and the custom user roles. Select the user role with which the user is to be assigned to the selected group.
Add Selection	Click to create a new user account and user role assignment with the selected user and user role.
Project Assignment(s)	Lists all existing projects and whether they are assigned to the group account. Check the check box next to a project to assign the project to the group account. If no projects exist, you may assign them later after you have created them.
Select All	Checks the check boxes of all listed projects.
Deselect All	Un-checks the check boxes of all listed projects.

Managing Projects

This topic describes the conceptual background of projects in Silk Central.

Projects are a prerequisite for beginning work with any Silk Central application. Projects serve as containers for related sets of tasks and results. Resources such as project managers and analysts are allocated to projects by assigning them to user groups, which have access rights to certain projects.

Note: Projects can be created and maintained by the administrator, project manager, and SuperUser roles.

Adding Projects

To create a project:

1. In the menu, click **Projects** > **Project List** . The **Projects** page displays, listing all existing projects and project baselines.
2. Click **New Project**. The **Project Settings** page displays.
3. Type a **Project name** and **Description**.
4. Select the **Project Owner**.
5. *Optional:* To create a project based on the Agile project template, choose *Agile Project Template* from the **Project Template** list box.
6. To initialize the project as an Issue Manager project, click **Initialize new project** or **Reuse existing project**. For more information, see *Initializing Projects as Issue Manager Projects*.
7. The **Groups** section includes a list of registered user groups. Check the **Assigned** check boxes of the user groups that will work with this project.
8. Click **Save** to save your settings. You are returned to the **Project List** page where the new project is listed.

Editing Projects and Project Baselines

To edit an existing project or project baseline:

1. In the menu, click **Projects** > **Project List** . The **Projects** page displays, listing all existing projects and project baselines.
2. Click in the Actions column of the project name of the project or project baseline you want to edit.

   Note: The project or project baseline must be inactive.
3. Edit the **Project name** and **Description** as required.
4. Change the **Project Owner** as required.
5. Check the **Active** check box to activate the project or project baseline.
6. The **Groups** section includes a list of registered user groups. Check the **Assigned** check boxes of the user groups that will work with this project.
7. A list of locations is located at the bottom of the page. Select the location(s) from which this project's tasks are to be executed. Click **Select All** to assign all locations to the project, or click **Deselect All** to select no locations.
8. Click **Save** to save your settings. You are returned to the **Project List** page.

Activating or Deactivating Projects and Project Baselines

Note: You can also activate or deactivate an existing project or project baseline from the **Project List** page. For additional infomation, see *Editing Projects*.

To activate or deactivate an existing project or project baseline:

1. In the menu, click **Projects** > **Project List** . The **Projects** page displays, listing all existing projects and project baselines.
2. Click **Active/Inactive** in the **Status** column of the project or project baseline you want to activate or deactivate. A confirmation dialog box displays, asking you if you are sure about the activation or deactivation.
3. Confirm to toggle the project status to `Active` or `Inactive`.

Copying Projects or Project Baselines

Describes how to copy an existing project or project baseline to a new project.

Caution: Copying a project or project baseline can lock the database for several minutes, depending on the size of the project or project baseline that is being copied. It is recommended to copy projects or project baselines during off-hours, when user activity on Silk Central is minimal.

Note: If the original project or baseline includes schedules, the scheduling options are set to none during the copy.

To copy a project or project baseline:

1. In the menu, click **Projects** > **Project List** . The **Projects** page displays, listing all existing projects and project baselines.
2. Click in the **Actions** column of the project or project baseline you want to copy. The **Copy Project** dialog box displays.
3. In the **New project name** text box, type a name for the new project.
4. Check the check boxes of any additional information types you want to have copied along with the new project. When you check the **Test history** check box, the versions are also copied.

   For detailed information on the check boxes, see *Copy Project Dialog Box*.
5. Click **OK**.
6. If no Issue Manager project is initialized for the project you are copying, go on with step 10. If an Issue Manager project is initialized, a dialog box appears:
   - If you want to reuse the existing Issue Manager project, click **Yes** and go on with step 10.
   - If you do not want to reuse the existing Issue Manager project but if you want to copy it, click **No** and go on with step 7.
7. Check the **Copy Issues** check box to copy all of the source project's existing issues to the new project.
8. Check **Copy Archived Issues** to copy all of the source project's archived issues to the new project.
9. Click **OK**.
10. Click **Yes** on the **Copy Project** dialog box, confirming that you want to begin the copy process and that you know the process may take several minutes. When the copy process is complete, a dialog box informs you what has been copied and asks you if you want to activate the project, thereby making the project available in Silk Central's project view.

Deleting Projects and Project Baselines

Caution: When you delete a project or project baseline you permanently remove all related results from the repository. You also destroy all content associated with the project or project baseline. If you want to keep results, we recommend that you set a project or project baseline to inactive rather than delete it. For information on deactivating projects and project baselines, see *Activating or Deactivating Projects or Project Baselines*.

To delete a project or project baseline:

1. In the menu, click **Projects** > **Project List** . The **Projects** page displays, listing all existing projects and project baselines.
2. Click in the **Actions** column of the project or project baseline you want to remove.

   Note: The project or project baseline must be inactive.

   A confirmation dialog box displays, asking you to confirm the deletion.
3. Click **Yes** to remove the project or project baseline; or click **No** to abort the operation. If you choose **Yes**, you will be returned to projects list, where the deleted project or project baseline is no longer listed.

Exporting Projects

You can export a project including all the project data as a .zip file to your local computer. This is especially useful if you want to archive the data outside of Silk Central.

To export a project:

1. In the menu, click **Projects** > **Project List** . The **Projects** page displays, listing all existing projects and project baselines.
2. Click (**Export project**) in the **Actions** column.
3. Click **OK** on the confirmation dialog box.
4. Specify a location on your computer to save the project data there. Silk Central saves the project data in a .zip file.

Attention: Before you start to export or import projects, carefully read the recommendations below.

- When you export/import large projects with a huge amount of project data, the export/import process can take a long time (up to some hours).
- The file size can vary tremendously from project to project and depends on many factors, for example: On the amount of assets, the run count, the attachments, the code coverage statistics, and most importantly on the result files.
- We recommend to minimize the size of a project before you export it. Therefore, you should remove unneeded data and especially unused result files.
- Some browsers have file upload limitations, like for example Internet Explorer. If the project that you want to import exceeds that size, the import will fail. Use another browser to avoid this issue.
- Be aware that the export/import process puts considerable load on Silk Central and on the database server. Export/import actions should be done during off-hours (for example over night or on the weekend) or at least when the Silk Central usage is low and no users are logged in.
- Exporting and importing data is tightly bound to and relying on the database and its content. If the database already contains any inconsistency in data, importing a project might fail. Hence, we strongly recommend - as good practice for every backup process - to try a reimport immediately after an export to ensure validity, data consistence and recoverability.
- If you want to reimport project data, use the exact same .zip file that you have exported. Other file formats will not be accepted. You can import the data only into the same Silk Central and database version that you have used to export the data.
- If you have any questions concerning the export/import process, do not hesitate to contact the customer support.

Importing Projects

Silk Central projects can be exported to archive the project data outside of Silk Central. To view the data, all results, reports, and so on, you have to reimport the project.

When you import project data, you must use the same Silk Central version and the same database version that were used to export the data. However, you can import project data to the same or to a different database server with the same version that was used to export the data.

To import a project:

1. In the menu, click **Projects** > **Project List** . The **Projects** page displays, listing all existing projects and project baselines.
2. Click **Import Project** on the top. The **Import Project** dialog box appears.
3. Browse for an appropriate .zip file on your computer and click **OK**. Silk Central uploads the data.

   Note: The .zip file has to be a file that was exported from Silk Central beforehand.

   Note: The .zip file is uploaded to the front-end server before it is imported into the database. Therefore, the front-end server needs to provide appropriate free disk space to store the .zip file.
4. Click **Yes** to start the import. Note the following:
   - Silk Central processes only one import at a time.

- Silk Central writes audit logs when an import starts, finishes or fails.
- The import is processed in the background. You are notified by email when the import is complete. Make sure that you have an email address and an email server configured before you start the import. Otherwise you will not be notified. For more information, see *Configuring Email Servers* and *User Settings Page*.
- The project appears in the project list when the import is complete.

Attention: Before you start to export or import projects, carefully read the recommendations below.

- When you export/import large projects with a huge amount of project data, the export/import process can take a long time (up to some hours).
- The file size can vary tremendously from project to project and depends on many factors, for example: On the amount of assets, the run count, the attachments, the code coverage statistics, and most importantly on the result files.
- We recommend to minimize the size of a project before you export it. Therefore, you should remove unneeded data and especially unused result files.
- Some browsers have file upload limitations, like for example Internet Explorer. If the project that you want to import exceeds that size, the import will fail. Use another browser to avoid this issue.
- Be aware that the export/import process puts considerable load on Silk Central and on the database server. Export/import actions should be done during off-hours (for example over night or on the weekend) or at least when the Silk Central usage is low and no users are logged in.
- Exporting and importing data is tightly bound to and relying on the database and its content. If the database already contains any inconsistency in data, importing a project might fail. Hence, we strongly recommend - as good practice for every backup process - to try a reimport immediately after an export to ensure validity, data consistence and recoverability.
- If you want to reimport project data, use the exact same .zip file that you have exported. Other file formats will not be accepted. You can import the data only into the same Silk Central and database version that you have used to export the data.
- If you have any questions concerning the export/import process, do not hesitate to contact the customer support.

Copy Project Dialog Box

Projects > **Projects List** > **Copy Project**

Use this dialog box to copy an existing project to a new project.

Note: Check the check boxes of any additional information types you want to have copied along with the new project. If you don't select additional information types, an empty project with only group assignments, location assignments, and project settings is copied.

Item	Description
New project name	Specifies the name of the new project to which the existing project is copied to.
New project description	Specifies the description of the new project to which the existing project is copied to.
Settings	Check this check box to copy project settings, filters, attributes, custom requirement properties, change notification, and integration configuration setting information to the new project. Third-party integration configuration setting information is not copied.
Requirements tree (includes Requirements settings)	Check this check box to copy the requirements tree with all information for each requirement, for example properties, attachments, and others. Third-party

Item	Description
	requirement information is not copied. When a project has been configured for an external requirements management system, you are asked if you want to transfer the RMS settings to the copy of the project.
Requirements history	Check this check box to copy the historical information for each requirement. This option is only available when **Requirements tree** is checked.
Tests tree (includes Tests settings)	Check this check box to copy the tests tree with all information for each test. When both **Requirements tree** and **Tests tree** are checked, in addition to the information listed above, the information related to the relationship between requirements and tests (assigned requirements and assigned tests) is also copied
Tests history	Check this check box to copy the historical information for each test. This option is only available when **Tests tree** is checked.
Execution Plans tree (includes Tests tree)	Check this check box to copy the execution tree with all information for each execution plan.
Last runs of tests	Check this check box to copy the last run of each test. This option is only available when **Execution Plans tree** is checked. When **Requirements tree**, **Execution Plans tree**, and **Last runs of tests** are checked, all trees are copied in their entirety. The relationship between the trees is also established.
Reports	Check this check box to copy all project-related reports to the new project.

For Issue Manager, the dialog box displays the following additional check boxes:

Copy Project — Issue Manager Dialog Item	Description
Copy Issues	Check this check box to copy all of the source project's existing issues to the new project.
Copy Archived Issues	Check this check box to copy all of the source project's archived issues to the new project.

If you do not check either check box, issue data will not be copied to the new project.

Source project configurations are automatically copied to the new project. These include:

- Products
- GUI configuration
- Notification rules and systemwide triggers
- Routing rules
- Workflow
- User views on inboxes
- Workgroups
- Inboxes
- User account configuration

Project Settings Page

Project > **New Project**

Use the **Project Settings** page to configure projects. The page displays the following items:

Item	Description
Project Name	Specifies the name of the project as it should appear in the GUI and in reports.
Description	A description of the project. You can enter any text for the description.
Project Owner	Specifies the owner of the project. The selected user account does not have any special privileges; this setting is purely informative.
Active	Check this check box to activate the project. Inactive projects are not visible in your application.
Project Template	This list box defines whether a project is based on the Agile project template or not. Choose `Agile Project Template` to base the project on the template for Agile project-management tools, or `<None>` to create a simple project.
Issue Manager Integration	Select one of the following options: • **No project**: No Issue Manager integration is created. • **Initialize new project**: The new project is initialized as an Issue Manager project. When you click **Save** on the bottom of the page, a dialog box appears, where you can configure all necessary settings for the project (groups, inboxes, products, and so on). • **Reuse existing project**: An existing project is used. Select a project from the list. If the project was not configured as an Issue Manager project before, you have to configure all necessary settings. A dialog box appears, when you click **Save**. If the project was already configured as an Issue Manager project before, you have to configure the credentials and the status mapping only.
Groups	Lists all existing user groups and whether they are assigned to the project. Check the check box next to a user group to assign the group to the project. If no user groups exist, you may assign them later after you have created them. You can also configure the group/project assignment on the **Group Settings** page. Privileges vary based on user roles. For information about user privileges, see *User Roles and Permissions*.
Select All	Checks the check boxes of all listed groups.
Deselect All	Un-checks the check boxes of all listed groups.
Location	Lists all existing locations and whether they are available to the project.Check the check box next to a location to assign the location to the project. If no locations exist, you may assign them later after you have created them. You can also configure the location/project assignment on the **Location Settings** page.
Select All	Checks the check boxes of all listed locations.
Deselect All	Un-checks the check boxes of all listed locations.

Initializing Projects as Issue Manager Projects

When you create a new project in Silk Central, you can integrate the project with an Issue Manager project:

1. In the menu, click **Projects** > **Project List** . The **Projects** page displays, listing all existing projects and project baselines.
2. Click **New Project**. The **Project Settings** page displays.
3. Configure the settings. For more information, see *Adding Projects*.

4. In the **Issue Manager Integration** row, you can select:
   - **Initialize new project**: Initializes a new Issue Manager project and integrates it with the newly created Silk Central project.
   - **Reuse existing project**: An existing Issue Manager project is integrated with the newly created Silk Central project. Select a project from the list. You will have to configure the credentials and the status mapping.
5. Click **Save** on the bottom of the page. The new project is created and appears in the **Projects List**. The **Configure Issue Manager Project** dialog box appears.
6. Configure your group settings and click **Next**.
7. Click **Add Inbox** to manually add inboxes to the project. Click **Generate Inboxes** to automatically generate inboxes for all users that are assigned to the project. You can check the checkbox to automatically generate inboxes for users and usergroups that are assigned in the future. Click **Next**.
8. Define your product settings and click **Close**.
9. Provide default credentials and click **OK**. The user name you enter needs to be part of the user group you assigned to the project.
10. Configure how the external and internal properties shall be mapped and click **OK**.

Note: You can cancel the initializing process at any time. However, to complete the initialization later, you have to configure these settings on the **Issue Tracking Profile** page, the Issue Manager **Project List** page, and the Issue Manager **Configuration** page.

Project Baselines

This topic describes the conceptual background of project baselines in Silk Central.

A project baseline is a snapshot of a project at a given time and can be created for any project or even another project baseline. The last run of each execution plan in the project is also included in the project baseline. The schedule options included in a project baseline are initially set to none, to prevent losing the execution status of the last runs. An example usage of a project baseline is to save a snapshot of a project immediately after a release. The *Baseline Comparison* report in Silk Central shows the amount of tests that are currently different in the project compared to the project baseline. For more information on the report, refer to the *Silk Central Help*.

For each new project baseline that includes an element of the **Tests** area, the **History** page of the element includes an entry with links to the project baseline and the corresponding element in the project baseline. If the element itself was created as part of a project baseline, the first entry in the **History** page includes links to the original project and the corresponding element in the original project.

When tests in the original project include calls to shared steps objects from libraries, you can define during the creation of the project baseline whether all calls are resolved or kept. The project baseline has the same visibility on the libraries as the original project. For more information on shared steps objects, refer to the *Silk Central Help*.

Note: Project baselines can be created by the administrator, project manager, and SuperUser roles.

Creating a Baseline for a Project

Caution: Creating a baseline for a project can lock the database for several minutes, depending on the size of the project that the baseline is created for. We recommend to create a baseline for a project during off-hours, when user activity on Silk Central is minimal.

Note: If the original project includes schedules, the scheduling options in the new baseline are set to none to prevent losing the last execution status. When tests in the original project include calls to shared steps objects, the baselined tests also call the same shared steps objects. When you create a baseline, the **History** page of each **Test** item included in the baseline is updated with an entry for the baseline.

To create a baseline for a project:

1. In the menu, click **Projects** > **Project List** . The **Projects** page displays, listing all existing projects and project baselines.
2. In the **Actions** column of the project you want to create a baseline for, click . The **Baseline Project** dialog box displays.
3. Type a name and a description for the new baseline.
4. *Optional:* If the project contains tests that use shared steps from libraries, define the handling of the shared steps in the **Library Assets Handling** section.
   - Click **Detach Library Assets** to detach all manual test steps from the containing shared steps objects into the tests of the baseline. Choose this option to create a project baseline for historical or auditing purposes.
   - Click **Keep References to Library Assets** to keep all references from manual test steps to the shared steps objects in the tests of the baseline. Choose this option to create a working copy for ongoing testing purposes, for example a new version of the project.
5. *Optional:* If the project contains manual tests, define in the **Test asset versioning** section whether a new version should be created for the tests in the original project and in the baseline.
   - Check the **Create new versions for all assets in original project** check box to create new versions for all manual tests with shared steps in the original project.
   - Check the **Create new versions for all assets in new baseline** check box to create new versions for all manual tests with shared steps in the baseline.

   Note: Versions are not created for data-driven instances.
6. Click **OK**. The **Baseline Project** dialog box displays and informs you that the operation may take several minutes to complete.
7. Click **Yes** to continue. The **Baseline Project - Adapt Project Settings** dialog box opens. The dialog box displays the requirement integration settings along with all source control profiles that are configured for the original project.
8. Click the corresponding **Edit** button to link the project baseline to the appropriate baseline, branch, label, or other point of reference in the source control profile, or to change the requirement integration settings.

   Note: For more information on editing source control profiles, refer to the *Silk Central Help*.
9. Click **Finish** to finish creating the baseline.
10. Click **Yes** in the **Baseline Project** dialog box to activate the new baseline.

Project Templates

This topic describes the conceptual background of project templates in Silk Central.

The Agile project template is used to support the interaction between Silk Central and VersionOne or other Agile project management tools. The template is a project with the specific attributes sprint and release. When you create a new project based on this template, a default test container and a default folder are also created. When the project management tool creates a test, the test is added to the default folder. No source control profile and no product are specified for the test container and the folder, therefore they are marked as incomplete.

Execution Environment

Manage the execution environment to specify where Silk Central tests are executed. Silk Central's execution environment consists of physical and virtual (cloud-hosted) execution servers, which are grouped into logical containers called **Locations**.

Locations are logical containers for execution servers. For information on setting up execution servers, see *Setting Up Execution Servers*. Since Silk Central supports worldwide distribution of Points of Presence (PoP) — the distribution of execution servers — it is desirable to group execution servers into locations.

Locations are not required to be physical locations though, they can simply be used to group your execution servers into manageable units.

Silk Central execution servers are responsible for executing scheduled tests, for example Silk Test Classic and Silk Performer scripts. Execution servers can be either physical or virtual (cloud-hosted) machines.

Managing Locations

Locations are logical containers for execution servers. For information on setting up execution servers, see *Setting Up Execution Servers*. Since Silk Central supports worldwide distribution of Points of Presence (PoP) — the distribution of execution servers — it is desirable to group execution servers into locations. Locations are not required to be physical locations though, they can simply be used to group your execution servers into manageable units.

Note: Silk Central automatically creates a default location called `Local`.

Adding Locations

To add a new location:

1. In the menu, click **Administration** > **Execution Environment**.
2. Click **New Location**.

   The **New Location** dialog box displays.
3. Type a **Location Name**.
4. If you have specified the location of a proxy server, select **Use System Proxy** by checking the respective check box.

   For more information, see *Configuring a System Proxy*.
5. In the **Location Proxy** section, you can define a proxy server through which the execution servers of this location will communicate with the application server.
6. In the **Host** text box, type the name of the computer hosting the proxy service.
7. In the **Port** text box, type the port number of the proxy host.
8. If the proxy server requires a username/password authentication, type the valid credentials in the **Username** and **Password** text boxes.
9. The **Projects** section includes a list of existing projects. Check the **Assigned** check boxes of the projects that you want to assign to this location.
10. Click **OK** to add the new location.

Editing Locations

Describes how to edit a location.

To edit a location:

1. In the menu, click **Administration** > **Execution Environment**.
2. Select the location that you want to modify and click .

   The **Edit Location** dialog box displays.
3. Modify the **Location Name** as required.
4. If you have specified the location of a proxy server, select **Use System Proxy** by checking the respective check box.

   For more information, see *Configuring a System Proxy*.
5. In the **Location Proxy** section, you can define a proxy server through which the execution servers of this location will communicate with the application server.
6. In the **Host** text box, type the name of the computer hosting the proxy service.

7. In the **Port** text box, type the port number of the proxy host.
8. If the proxy server requires a username/password authentication, type the valid credentials in the **Username** and **Password** text boxes.
9. The **Projects** section includes a list of existing projects. Check the **Assigned** check boxes of the projects that you want to assign to this location.
10. Click **OK**.

Deleting Locations

Tip: Before you can delete a location, you must first remove all assigned execution servers from the location. For more information, see *Deleting Execution Servers*.

To delete a location:

1. In the menu, click **Administration** > **Execution Environment**.
2. Select the location that you want to remove and click ✕. A confirmation dialog box displays, asking you to confirm the deletion.
3. Click **Yes** if you want to remove the location, or click **No** to abort the operation.

New Location Dialog Box

Administration > **Execution Environment** > **Execution Servers** > **New Location**

Use the **New Location** dialog box to configure locations.

Item	Description
Name	Specifies the name of the location as it should appear in the GUI and in reports.
Use system proxy	Enabling this setting will force all execution servers of this location to communicate with the application server through the defined system proxy. If this setting is not enabled, the application server will communicate directly with the execution servers, unless you define a location proxy. This check box is disabled if no system proxy is defined.
Location proxy	Use this area to define a proxy server through which the execution servers of this location will communicate with the application server. Leave the fields empty if you want the execution servers of this location to communicate directly with the application server, or if you checked the **Use system proxy** option. You can also define a system proxy and a location proxy, in which case the communication will be tunneled through both proxies. You may only define a location proxy that supports Secure Sockets Layer (SSL). All execution servers must use the SSL port of the proxy. For detailed information about execution server settings, see *Setting Up Execution Servers*.
Hostname	The name of the computer hosting the proxy service.
Port	The port number of the proxy host. Default is port 443.
Username	If the proxy server requires a username/password authentication, enter a valid username.

Item	Description
Password	If the proxy server requires a username/password authentication, enter a valid password for the username specified in the **Username** text box.
Assigned Projects	Lists all existing projects. Check the check box next to a project to assign the project to the location. If no projects exist, you can assign them later after you have created them. For more information, see *Adding Projects*. Selected projects will have access to the execution servers at this location.
Select All	Checks the check boxes of all listed projects.
Deselect All	Un-checks the check boxes of all listed projects.

Setting Up Execution Servers

Silk Central execution servers are responsible for executing scheduled tests, for example Silk Test Classic and Silk Performer scripts. Execution servers can be either physical or virtual (cloud-hosted) machines.

To execute Silk Test Classic and Silk Performer tests, Silk Test Classic or Silk Performer software must be installed on the same computer on which Silk Central execution servers are installed.

When executing Silk Performer scripts against multibyte applications or Web pages, review the *Multibyte Support* section in the *Silk Performer Help*.

For further details regarding the installation of execution servers, see *Installing Silk Central*. For information regarding Silk Test Classic and Silk Performer, refer to the respective product documentation.

Hardware Provisioning with Keywords

The hardware-provisioning technology of Silk Central helps you manage test environments that include numerous execution servers. Rather than having to configure a one-to-one direct relationship between each execution server and execution plan, keywords enable Silk Central to select the most appropriate execution server for each execution plan. This is done through dynamic comparison of an execution plan's keyword list with the keyword lists of all active execution servers.

Keywords typically describe the environment of an execution server, for example platform, operating system, and pre-installed applications. When an execution plan is executed, Silk Central compares the execution plan's keywords with the keywords of all available execution servers. The execution is then run on the execution server that matches the execution-plan's keyword list. If there is no matching execution server, the execution will not be run. If there are multiple execution servers with matching keyword lists, the execution will be run on the first identified execution server.

For physical execution servers on which Silk Test is installed, Silk Central automatically assigns keywords depending on the installed browsers and connected mobile devices.

Reserved Default Keywords

If you do not require hardware provisioning, you can rely on the reserved keywords that are created automatically for each execution server. In such cases, it is not necessary that you manually assign keywords to your execution servers. Instead, you can configure a one-to-one static execution-server assignment for each execution plan.

A reserved keyword is assigned automatically to each newly created execution server. Reserved keywords are structured in the following form:

```
#<execution name>@<location name>
```

.

Reserved keywords are available when assigning keywords to execution plans. They are neither available or applicable when assigning keywords to execution servers.

In addition to the reserved keywords that are set up automatically for each defined execution server, reserved keywords are also set up for each execution server type:

#PHYSICAL	Limits execution-server provisioning to physical execution servers.
#VIRTUAL	Limits execution-server provisioning to virtual execution servers.

Keywords and Virtual Execution Servers

Keywords are assigned to virtual execution servers in the same way that they are assigned to physical execution servers. When you configure at least one virtual execution server, the `#VIRTUAL` keyword is dynamically created and made available for assignment to all execution plans. If you prefer that an execution is executed on a virtual machine, select the `#VIRTUAL` keyword for the execution plan. When an execution plan has neither (or both) the `#VIRTUAL` and `#PHYSICAL` keywords, the execution may occur on either a virtual or a physical execution server, assuming the settings of the execution environments are the same. When an execution-plan's keywords match multiple virtual execution servers, the first matching virtual execution server that is identified is selected.

Configuring Physical Execution Servers

To configure a physical execution server:

1. In the menu, click **Administration** > **Execution Environment**.
2. Select the location for which you want to configure an execution server.
   - To create a new execution server, click **New Physical Execution Server**.
   - To edit an existing execution server, click the respective **Edit** button in the **Actions** column.

   Note: Execution servers must be deactivated before their properties can be edited. Keyword-lists of active execution servers can however be edited.
3. Enter a valid IP address or hostname in the **Hostname or IP address** text box.
4. Specify the port on which the execution server listens in the **Port** text box.

   Note: Check the **Use SSL** check box if you want to connect to the execution server through SSL.

   Tip: To connect to the execution server through a non-standard SSL port, see *Configuring a Non-Standard SSL Port for Execution Servers*.
5. *Optional:* Type a responsiveness timeout in seconds in the **Responsiveness Timeout** text box. If the execution server on the virtual machine is not accessible for the specified time, the automated run will be aborted. Enter `0` if you do not want to abort the run in such a case.
6. Click **Keywords** to select keywords from a list or add new keywords that describe the execution server.

   These keywords are analyzed at execution time to dynamically select an appropriate server for each execution. For more information, see *Creating and Assigning Execution-Server Keywords*.
7. Click **OK** to save your settings. If you receive an error message, ensure that your settings are correct, the network is configured properly, and that the required software is installed on the execution server you are setting up.

   Important: Because the installation of an execution server requires administrative privileges, the automatic upgrade of an execution server fails if UAC is enabled. Disable UAC on all computers that host an execution server.

   Note: If the version of the execution server is an invalid older version, but later than or equal to SilkCentral Test Manager 2009 SP1, the execution server is automatically upgraded to the current Silk Central version. Silk Central shows a message concerning the upgrade in the **Information**

column in the list of execution servers. As long as the upgrade procedure is not complete, the upgrading execution server is not used.

Configuring Cloud-Hosted Execution Servers

To configure a cloud-hosted execution server:

1. In the menu, click **Administration** > **Execution Environment**.
2. Select the location for which you want to configure an execution server.
   - To create a new execution server, click **New Virtual Execution Server**.
   - To edit an existing execution server, click the respective **Edit** button in the **Actions** column.
   - To synchronize the list of execution servers that use templates from a cloud provider, select the **Cloud Providers** tab. Click in the **Actions** column to synchronize the list of execution servers that use templates from this cloud provider. This will remove all virtual execution servers of this profile that have a template assigned which no longer exists. After a Hotfix has been applied, this will also update the templates of automatically created virtual execution servers.

   Note: Execution servers must be deactivated before their properties can be edited. Keyword-lists of active execution servers can however be edited.
3. In the **Cloud Provider** list, choose from the list of configured cloud provider profiles to determine in which cloud the virtual environment will be deployed when this execution server is used for an automated run.
4. In the **Virtual Image Template** list, select the image template from which a new instance will be created for each automated run. Depending on the cloud provider, an image template consists of at least one virtual machine image. A Silk Central execution server must be running in one virtual machine image. If the execution server version is outdated, the server will be upgraded automatically after deploying the virtual environment for each automated run. The deployment procedure is quicker if the VM image already runs a current execution server version.
5. Specify the port on which the execution server listens in the **Port** text box.

   Note: Check the **Use SSL** check box if you want to connect to the execution server through SSL.

   Tip: To connect to the execution server through a non-standard SSL port, see *Configuring a Non-Standard SSL Port for Execution Servers*.
6. *Optional:* Type a responsiveness timeout in seconds in the **Responsiveness Timeout** text box. If the execution server on the virtual machine is not accessible for the specified time, the automated run will be aborted. Enter `0` if you do not want to abort the run in such a case.
7. Click **Keywords** to select keywords from a list or add new keywords that describe the execution server.

   These keywords are analyzed at execution time to dynamically select an appropriate server for each execution. For more information, see *Creating and Assigning Execution-Server Keywords*.
8. Click **OK** to save your settings and enable the execution server for automated runs according to the specified keywords. If you receive an error message, ensure that your port setting is correct and that an execution server is installed on the virtual machine image. If the error message mentions that the installed execution server is of an invalid version, you can ignore the error because the server will be upgraded automatically for each automated run.

Creating and Assigning Execution Server Keywords

To create and assign execution server keywords:

1. In the menu, click **Administration** > **Execution Environment**.
2. Select a location to access the list of defined execution servers for that location.
3. In the **Actions** column of a predefined execution server, click , or click **New Physical Execution Server** or **New VirtualExecution Server** to create keywords for a new execution server.

Note: For physical execution servers on which Silk Test is installed, Silk Central automatically assigns keywords depending on the installed browsers and connected mobile devices. Click in the **Actions** column to refresh the list of assigned keywords.

4. Click **Keywords**. The **Assign Keywords** dialog box displays.
5. Type a new keyword into the **Select or enter keywords** field or select an existing keyword that describes the environment on the execution server, like the platform, operating system, or pre-installed applications. The following characters cannot be used in keywords: # $? * \ , ; ' "

   Note: If you are working with a new Silk Central installation you may not see any available keywords. Though not visible on the **Assign Keywords** dialog box, reserved keywords are created for each execution server that is configured for the system. These reserved keywords are only available when assigning keywords to execution plans.

   You can use **Ctrl + Click** or **Shift + Click** to select multiple keywords using standard Windows multi-select functions. Note that the **Select or enter keywords** field is disabled when multiple keywords are selected in the lists.

   If you do not require hardware provisioning, you can use the default, reserved keywords that are created for each execution server. In such cases, it is not necessary that you assign additional keywords to the execution server.
6. Click **Add (>)** to move the keyword into the **Assigned keywords** list.
7. Click **OK** to save the keywords and close the **Assign Keywords** dialog box.

Activating or Deactivating Execution Servers

1. In the menu, click **Administration** > **Execution Environment**.
2. Select a location to access the list of defined execution servers for that location.
3. In the **Status** column of the execution server you want to activate or deactivate, click **Inactive**/**Active**.

   Important: Because the installation of an execution server requires administrative privileges, the automatic upgrade of an execution server fails if UAC is enabled. Disable UAC on all computers that host an execution server.

   Note: If the version of the execution server is an invalid older version, but later than or equal to SilkCentral Test Manager 2009 SP1, the execution server is automatically upgraded to the current Silk Central version. Silk Central shows a message concerning the upgrade in the **Information** column in the list of execution servers. As long as the upgrade procedure is not complete, the upgrading execution server is not used.

Deleting Execution Servers

Tip: To prevent data inconsistency, you need to deactivate an execution server before you can delete it. For additional information, see *Activating or Deactivating Execution Servers*.

Note: Deleting an execution server does not remove the actual software installation. Deletion simply disconnects the execution server. You can add a previously deleted execution server again.

1. In the menu, click **Administration** > **Execution Environment**.
2. Select a location to access the list of defined execution servers for that location.
3. In the **Actions** column of the execution server you want to remove, click .

Configuring a Non-Standard SSL Port for Execution Servers

The default SSL port through which the application server communicates with execution servers is 19125.

Note: This procedure needs to be performed for each execution server that you want to connect to through a non-standard SSL port.

To configure a non-standard SSL port for an execution server:

1. Deactivate the execution server for which you want to configure a non-standard SSL port.
2. Stop the execution server.
3. Open the `SccExecServerBootConf.xml` file with a text editor.

   This file is located in the `/conf/execserver` folder of the Silk Central directory on the execution server.
4. Locate the `<SSLPort>` XML tag. By default, the tag is set to `<19125>`.

   Set the value to the port number that you want to use for SSL communication.
5. Save and close the XML file.
6. In Silk Central, set the SSL port of the execution server to the value that you have specified in the XML file.
7. Restart the execution server.
8. Reactivate the execution server.

New/Edit Execution Server Dialog Box

Administration > **Execution Environment** > **Execution Servers** > **New/Edit Execution Server**

Use the **New/Edit Execution Server** dialog box to configure execution servers within a location.

Item	Description
Name	Defines a name for the execution server. This name will appear in all tables and result reports for executions from this specific computer. You can enter up to 100 characters.
Description	A description of the execution server. You can enter any text for the description.
Physical execution server	Select this option to specify a physical machine as execution server.
Host or IP-address	Specifies the name of the host or the IP-address of the computer on which the execution server is installed. Some networks may only find the execution server if you specify the full name of the host, including the name of the domain, for example `MyHost.MyDomain`.
Port	Specifies the port of the computer defined in the **Host or IP-address** text box on which the execution server listens. The default port is `19124`.
Use SSL	Check this check box if you want the application server to connect to the execution server through Secure Sockets Layer (SSL). The default SSL port is `19125`. If you selected to use a proxy server for the location to which this execution server is assigned, you must check **Use SSL** with port `443`.
Responsiveness timeout [s]	Type a responsiveness timeout in seconds in the **Responsiveness Timeout** text box. If the execution server on the virtual machine is not accessible for the specified time, the automated run will be aborted. Enter `0` if you do not want to abort the run in such a case.

Item	Description
Keywords	Lists the keywords that have been defined for this execution server. Keywords enable Silk Central's hardware-provisioning technology to dynamically identify the most appropriate execution server for each test execution. Click **Keywords** to edit the keywords list for this execution server.

Cloud Integration

Silk Central enables you to integrate with providers of public or private cloud services by configuring cloud provider profiles. Cloud profiles are based on a plug-in concept, which enables you to write your own plug-in for a specific cloud provider. A cloud provider plug-in deploys a virtual environment before each automated test run.

Note: The cloud API is subject to change in upcoming versions of Silk Central. If you use this API, upgrading to a future version of Silk Central may require you to make updates to your implementation.

Adding Cloud Profiles
Add a cloud profile to integrate with providers of public or private cloud services.

1. In the menu, click **Administration** > **Execution Environment**.
2. Click the **Cloud Providers** tab.
3. Click **New Profile**. The **New Cloud Provider Profile** dialog box appears.
4. Select the cloud provider that you want to access from the **Type** list of installed plug-ins. `VMware vCloud` and `Amazon Web Services` are supported out-of-the box.

   Note: `Amazon Web Services` is only available with Silk Central Connect.
5. In the **Name** field, enter a name for the profile. This name will be displayed in the list of profiles when creating a cloud-hosted execution server.
6. Enter valid credentials to remotely access the cloud system in the **Username** and **Password** fields. For `Amazon Web Services`, this is the **Access Key** and the **Secret Key**.
7. To configure a VMware vCloud profile (skip this step to configure a different profile):
   a) If the cloud system is accessible through a URL, enter the **URL**. Enter the URL with the hostname only and do not append `/cloud/org/<organization name>` as you would when accessing the system with a Web browser. Example: `https://vdirectorweb`.
   b) *Optional:* **Version**: Leave the field empty if you are using vCloud Director 5.1 (default). Enter `V1.5` if you are using vCloud Director 1.5.
   c) **Organization**: Enter the name of the vCloud organization that you want to access, for example `dev_org`.
8. To configure an Amazon Web Services profile (skip this step to configure a different profile):
   a) **Region**: Select the region in which you want to deploy your instance.
   b) **Instance Type**: The instance types that Amazon offers. This defines for example how much RAM and CPU power your instance will have. Note that this also has an impact on lease costs.
   c) **Keep instance alive on connection error**: Select `true` if you want the instance to stay alive when the connection between the application server and the Amazon instance breaks.
9. Click **Test Connection** to perform a test connection to the cloud provider with the information that you have entered.
10. Click **OK** to save your settings.

If the selected cloud provider has templates named "Borland Silk Central Execution Server 15.0.0.x", these templates are automatically imported as virtual execution servers. Only templates with the same version as your running Silk Central environment (see **Help** > **About**) will be imported.

Editing Cloud Profiles

Edit a cloud profile to modify how you access the provider of a public or private cloud service.

Important: If virtual environments based on this profile are already deployed (see the **Deployed Instances** column of the grid), changing the settings might cause that Silk Central will not delete these unused environments automatically anymore.

1. In the menu, click **Administration** > **Execution Environment**.
2. Click the **Cloud Providers** tab.
3. Click in the **Actions** column to synchronize the list of execution servers that use templates from this cloud provider. This will remove all virtual execution servers of this profile that have a template assigned which no longer exists. After a Hotfix has been applied, this will also update the templates of automatically created virtual execution servers.
4. Click (**Edit**) in the **Actions** column of the profile that you want to edit. The **Edit Cloud Provider Profile** dialog box appears.
5. In the **Name** field, enter a name for the profile. This name will be displayed in the list of profiles when creating a cloud-hosted execution server.
6. Enter valid credentials to remotely access the cloud system in the **Username** and **Password** fields. For `Amazon Web Services`, this is the **Access Key** and the **Secret Key**.
7. To configure a VMware vCloud profile (skip this step to configure a different profile):
   a) If the cloud system is accessible through a URL, enter the **URL**. Enter the URL with the hostname only and do not append `/cloud/org/<organization name>` as you would when accessing the system with a Web browser. Example: `https://vdirectorweb`.
   b) *Optional:* **Version**: Leave the field empty if you are using vCloud Director 5.1 (default). Enter `V1.5` if you are using vCloud Director 1.5.
   c) **Organization**: Enter the name of the vCloud organization that you want to access, for example `dev_org`.
8. To configure an Amazon Web Services profile (skip this step to configure a different profile):
   a) **Region**: Select the region in which you want to deploy your instance.
   b) **Instance Type**: The instance types that Amazon offers. This defines for example how much RAM and CPU power your instance will have. Note that this also has an impact on lease costs.
   c) **Keep instance alive on connection error**: Select `true` if you want the instance to stay alive when the connection between the application server and the Amazon instance breaks.
9. Click **Test Connection** to perform a test connection to the cloud provider with the information that you have entered.
10. Click **OK** to save your settings.

Deleting Cloud Profiles

Delete a cloud profile if you no longer need to access a specific provider of a public or private cloud service.

Important: Deleting a profile will also delete all execution servers that use this profile and abort all executions that currently use these execution servers. If virtual environments based on this profile are already deployed (see the **Deployed Instances** column of the grid), changing the settings might cause that Silk Central will not delete these unused environments automatically anymore.

1. In the menu, click **Administration** > **Execution Environment**.
2. Click the **Cloud Providers** tab.
3. Click (**Delete**) in the **Actions** column of the profile that you want to remove. A confirmation dialog box displays.
4. Click **Yes** to continue with the deletion or click **No** to abort the deletion.

VMware vCloud Integration

Mappings

The templates that are available for vCloud execution servers correspond to vApp templates in local (non public) catalogs in vCloud. They are displayed as `<catalog name> - <vApp template name>`.

Deploying a virtual environment for a test run creates a new vApp in vCloud Director, with its name based on the template name and the suffix `- for Silk Central <timestamp>`.

Limitations

- The Silk Central vCloud integration only allows the usage of vApp templates in local (non public) catalogs. Public catalogs can still be used to copy or move templates across organizations, but the contained templates will not be available in Silk Central. The reason for this limitation is that there are potential problems to create vApps from templates in a public catalog if the template originates from another organization. This happens because the vDC and the network associated with the template are not valid in another organization.
- No fencing support. Silk Central does not support that multiple VMs within a vApp communicate with each other with a known IP address, because each deployed VM dynamically receives a new IP.
- vApp templates with the setting **Create Identical Copy** are not supported. When creating a vApp template to be usable in Silk Central, make sure that in the properties of the vApp template the option **Customize VM settings** is enabled. Setting this option to **Identical Copy** will raise an error when Silk Central attempts to deploy vApps from this template. Note that this option can only be set when creating the vApp template.
- Silk Central does not support VMs in a vApp template for which the **Guest System Customization** is disabled.
- Accessing commercial service providers that expose a vCloud REST API has not been tested, but may work. The integration has been tested with vCloud Director 5.1 installed as private cloud.
- To prevent IP assignment conflicts, store vApp templates with DHCP IP mode configured for the network adapter. If this is not configured, booting a VM for the first time after deployment can cause vApp machines to have an old static IP from the time the template was stored. The correct IP gets updated when VMware does a guest system customization, which adjusts the IP configuration and initiates a reboot. Silk Central always configures static IP pool mode (applied after guest system customization), no matter what is configured in the template.
- If using more than one network in the virtual data center (vDC), configure the network to be used in the stored vApp template. Silk Central matches the name of the network that is set in the template VM network adapter with the vDC network names to choose the right vDC network when deploying a new vApp.

Cloud Providers Page

Administration > **Execution Environment** > **Cloud Providers**

The **Cloud Providers** page lists all configured cloud provider profiles. Use this page to manage your cloud provider profiles.

On this page you can perform the following actions:

- Click **New Profile** to configure a new cloud provider profile.
- Click (**Edit**) in the **Actions** column to edit the settings.
- Click (**Delete**) in the **Actions** column to delete a cloud provider profile.
- Click in the **Actions** column to synchronize the list of execution servers that use templates from this cloud provider. This will remove all virtual execution servers of this profile that have a template assigned which no longer exists. After a Hotfix has been applied, this will also update the templates of automatically created virtual execution servers.

Managing Report Templates

Silk Central offers a variety of pre-installed reports that let you quickly and easily transform data into presentation-quality information for analysis. The default reports can be customized with either Microsoft Excel, Microsoft Word, or BIRT, an Eclipse-based, open source reporting tool for Web applications. You can also use these tools to create entirely new reports. To customize reports created with Microsoft Excel, you need a copy of Microsoft Excel, and likewise, Word for the Word template.

Silk Central reports do not support bitmap (.bmp) image file format. For proper display, images must be in JPEG, GIF, or PNG format.

Managing Custom Report Templates with BIRT

Silk Central is tightly integrated with Business Intelligence and Reporting Tools (BIRT) RCP Designer to make it easy for you to generate reports for your test-, build-, defect-, and requirement data.

After downloading a copy of BIRT RCP Designer, you can customize the core Silk Central reports and add your own reports. For information about running and customizing reports, please refer to the application's Help.

For additional information on BIRT RCP Designer, refer to BIRT RCP Designer's online help system. You can find further information, examples, and demonstrations for BIRT RCP Designer at *http://www.eclipse.org/birt*. An active newsgroup (news.eclipse.org) is also available.

The software prerequisites to work with BIRT custom reports are:

- BIRT RCP Designer
- Access to Silk Central with administrator privileges

Note: Silk Central reports do not support bitmap (.bmp) image file format. For proper display, images must be in JPEG, GIF, or PNG format.

Installing BIRT from Silk Central

This procedure explains how to install BIRT RCP Designer from your Silk Central installation. By installing BIRT this way, all necessary configurations for Silk Central are done automatically.

To install BIRT from Silk Central:

1. Navigate to **Help** > **Tools** .
2. Click the **BIRT RCP Report Designer** link.
3. After downloading the compressed installer package to your local system, extract the compressed files to a directory on your system, for example `C:\BIRT`.

   Note: If you encounter an error when extracting the installer files using Windows compressed folder functionality, use an extraction tool instead, for example WinZip or WinRAR, to extract the files.
4. Start `BIRT.exe` from the directory you extracted the files to.

Configuring BIRT for Silk Central

If BIRT is already installed on your computer, or you are installing BIRT from another location, for example from the Eclipse homepage, you need to configure BIRT for use with Silk Central after the installation. If you have installed BIRT from Silk Central as described in *Installing BIRT from Silk Central*, you do not need to perform the steps outlined in this procedure.

To configure BIRT RCP Designer for use with Silk Central:

1. Copy the `jtds.jar` and `ojdbc6.jar` files, available in the `\lib` directory of your Silk Central front-end server installation folder, to the `plugins`

`\org.eclipse.birt.report.data.oda.jdbc_<version>\drivers` directory of your BIRT installation.

This will allow JDBC access to your Silk Central installation.

2. Copy the `scc.jar` file, available in the `\lib` directory of your Silk Central front-end server installation folder, to the `plugins\org.eclipse.birt.report.viewer_<version>\birt\WEB-INF\lib` directory of your BIRT installation.
3. Create a directory to store the reports you intend to create, for example `C:\MyBirtReports`. Create a subdirectory called `conf` within the newly created directory.
4. Within the `conf` directory, create a directory called `birt`. You should now have a directory structure that resembles the following: `C:\MyBirtReports\conf\birt`.
5. Copy the file `library.rptlibrary`, available in the `\conf\Birt` directory of your Silk Central front-end server installation folder, to the `\conf\birt` directory that you created in the previous step.
6. Launch BIRT by executing the `BIRT.exe` file, located in the local directory where you extracted the application's compressed files.
7. From within BIRT RCP Designer, select **Preferences** from the **Window** menu.
8. In the **Preferences** window, select **Report Design** > **Resource** in the directory tree in the left-hand pane.
9. In the **Resource folder** text box, enter the directory that you created.

   For example `C:\MyBirtReports\conf\birt`.
10. Click **Apply**, then click **OK**.

Establishing Database Access For a New Report Template

Before you can create a new report template with BIRT RCP Designer, you need to establish database access to the Silk Central repository you want to query.

To establish database access for a new report template:

1. From within BIRT RCP Designer, select the menu **File** > **New** > **New Report** .
2. Follow the steps in the **New Report** wizard.
3. Open the **Resource Explorer**.
4. In the **Resource Explorer**, click **Shared Resources** > **conf** > **birt** > **library.rptlibrary** > **Data Sources** > **Data Source** and drag the required datasource into your report's `Data Sources` directory, which is located in the **Outline** window.
5. In the **Resource Explorer**, click **Shared Resources** > **conf** > **birt** > **library.rptlibrary** > **Report Parameters** and drag the four report parameters `sourceUser`, `sourcePassword`, `sourceURL`, and `sourceDriver` into your report's `Report Parameters` directory, which is located in the **Outline** window.
6. Double-click the newly imported data source to open the **Edit Data Source** dialog box.
7. Type a valid **Driver Class** and **Database URL**.

   For additional information, see **BIRT Data Source Settings** topic.
8. Click **Test Connection** to test your settings. If the database connection has been established, you can proceed with designing your new report template.
9. Click **OK**.

BIRT Data Source Settings

Use the BIRT **New JDBC Data Source Profile** dialog box to establish database access to an existing Silk Central repository. To access the **New JDBC Data Source Profile** dialog box, right-click **Data Sources** in the **Outline** pane, click **New Data Source**, select **JDBC Data Source**, and click **Next >**.

To connect to a MS SQL Server or a MS SQL Server Express database, use the following credentials:

Item	String	
Driver Class	`net.sourceforge.jtds.jdbc.Driver`	
Driver URL	**MS SQL Server**	`jdbc:jtds:sqlserver://<HOST>:<PORT>/<DATABASE>`
	MS SQL Server Express	`jdbc:jtds:sqlserver://<HOST>:<PORT>/<DATABASE>;instance=<INSTANCENAME>`
	HOST	Host name or IP-address of the computer hosting the database server.
	PORT	Port number of the database management system. Default is 1433.
	DATABASE	The name of the database.
	INSTANCENAME	Only for MS SQL Server Express. Instance name of the database instance. The default MS SQL Server Express instance is `localhost\SQLExpress`.

To connect to an Oracle database, use the following credentials:

Item	String	
Driver Class	`oracle.jdbc.OracleDriver`	
Driver URL	`jdbc:oracle:thin:@<HOST>:<PORT>:<DATABASE>`	
	HOST	Host name or IP-address of the computer hosting the database server.
	PORT	Port number of the database management system. Default is 1521.
	DATABASE	Oracle SID.

Adapting Existing Report Templates

Silk Central allows you to download and adapt BIRT report templates that contain all the information you need to create custom report templates for use with Silk Central modules.

Note: Silk Central reports do not support bitmap (.bmp) image file format. For proper display, images must be in JPEG, GIF, or PNG format.

To create a report based on a Silk Central template:

1. In the menu, click **Administration** > **Report Templates** . The **Report Templates** page displays, listing all of the report templates that have been uploaded.
2. Click in the **Actions** column.
3. Save the template file `<filename>.rptdesign` to your local system.
4. Open the downloaded template file in **BIRT RCP Designer**.
5. Redesign the report as necessary.

   For instructions on report design, refer to BIRT RCP Designer's online help system.
6. To preview your report, click the **Preview** tab.

   If you click the **Preview** tab for the first time, the **Enter Parameters** dialog box opens, where you need to specify a valid session ID.
7. To generate a session ID, execute the following URL in a web browser.

   `http://<HOST>:<PORT>/services/sccsystem?method=logonUser&userName=<USERNAME>&plainPasswd=<PASSWORD>`.

Parameter	Description
HOST	Host name or IP-address of the computer hosting Silk Central.
PORT	Port number of the Silk Central front-end server. Default is `19120` if you access Silk Central through a standalone Web server, and `80` if you access Silk Central through IIS.
USERNAME/ PASSWORD	Valid credentials of a Silk Central user.

Note: The order of the valid credentials USERNAME and PASSWORD is very important.

8. If at some point your edited report does not return any data, the likely cause is that the session ID has timed out. Click **Show Report Parameters** in the **Preview** window to enter a new session ID. To generate a new session ID, repeat the previous step.

Setting and Editing Report Permissions and Associations

The report administrator sets and edits the permissions that determine who can print reports and who can change report names and descriptions. You may want to change the projects, modules, or categories with which reports are associated. You also may find it helpful to change a report's description or name to assist users in interpreting reports.

Once you have created a new custom report using BIRT RCP Designer or Excel and uploaded the report to Silk Central, you need to set permissions to make the report available to users.

To set or edit permissions for a Silk Central report template:

1. In the menu, click **Administration** > **Report Templates** . The **Report Templates** page displays, listing all of the report templates that have been uploaded.
2. Click the name of the report template for which you would like to edit or set permissions and associations. The **Edit Report Template** dialog box displays.
3. You can change a report's permission settings by modifying the selections in the **Projects** and **Modules** list boxes.

   This will determine which users have access to the selected report template.
4. Once you are done editing, click **OK** to save your changes to the report template.

   The edits you have made are applied immediately. Users will see changes the next time they access or refresh the report list.

Downloading Report Templates

The report template of the selected report, including the layout, is downloaded. Downloading Silk Central report templates to your local system enables you to edit them through BIRT Report Designer or Microsoft Excel. After you download and edit a report, you can upload it to make it available to other users. For more information, see *Uploading Report Templates*.

To download a Silk Central report template:

1. In the menu, click **Administration** > **Report Templates** . The **Report Templates** page displays, listing all of the report templates that have been uploaded.
2. Click in the **Action** column of the report you want to download. The **File Download** dialog box displays.
3. Click **Save** and download the report file to your local system as a `.rptdesign` or `.xls` file, depending on the report type that you are downloading.
4. Now edit the report based on your needs using either BIRT RCP Designer, for `.rptdesign` files, or Excel, for `.xls` files.

Uploading Report Templates

Uploading Silk Central report templates makes them available for others to use. You may want to upload a report template after you have edited it with BIRT RCP Designer, Micrfosoft Word, or Microsoft Excel. You can only run a report if you have access to the project and module to which the report is associated.

Note: SuperUser, Administrator, or Reporter privileges are required to create and upload custom reports. You cannot upload or update reports with other user privileges.

Tip: Templates must be configured with additional information so that they can be identified once they are uploaded to Silk Central.

Note: Silk Central reports do not support bitmap (.bmp) image file format. For proper display, images must be in JPEG, GIF, or PNG format.

To upload a customized template as a new report:

1. In the menu, click **Administration** > **Report Templates** . The **Report Templates** page displays, listing all of the report templates that have been uploaded.
2. Click **Upload** at the bottom of the page. The **Upload Report Template** dialog box displays.
3. Type a **Name** for the report.
4. *Optional:* Type a **Description** of the report.
5. From the **Projects** list box, select the projects with which the report is to be associated.
   Hold down the **Ctrl** key to select multiple projects.
6. From the **Modules** list box, select the modules with which the report is to be associated.
   Hold down the **Ctrl** key to select multiple modules.
7. Click **Browse** next to the **File** field.
8. Browse to and select the template file that is to serve as the basis for the report template.
   The file you select must have the `.rptdesign`, `.docx`, or `.xls` file extension.
9. Click **OK** to upload the report template for use in Silk Central.

Updating Report Sources

Updating an existing Silk Central report template allows you to move a report you have customized with BIRT RCP Designer, Microsoft Word, or Microsoft Excel into Silk Central and make it available to other users.

Note: SuperUser, Administrator, or Reporter privileges are required to create and upload custom reports. You cannot upload or update reports with other user privileges.

Caution: Report templates that ship with Silk Central are automatically patched when you upgrade to a new version. It is therefore important that you save your customized report templates in a dedicated custom folder, or that you upload customized report templates as new templates. For more information, see **Uploading Report Templates**.

To update a report template with a modified template file:

1. In the menu, click **Administration** > **Report Templates** . The **Report Templates** page displays, listing all of the report templates that have been uploaded.
2. Click in the **Action** column of the report you want to update.
3. Click **Browse** on the **Update Report Template** dialog box to browse to and select the template file that is to overwrite the existing template file.
   The file you select must have the `.rptdesign`, .docx, or `.xls` file extension.
4. Click **OK** to upload the file, and thereby overwrite the file that the report template was previously based on.

Deleting Report Templates

You can remove a Silk Central report from the list of available reports.

To delete a Silk Central report:

1. In the menu, click **Administration** > **Report Templates** . The **Report Templates** page displays, listing all of the report templates that have been uploaded.
2. Click ✕ in the **Action** column of the report you want to remove. A confirmation dialog box displays.
3. Click **Yes** to remove the report from the list.

Report Templates Page

Administration > **Report Templates**

Use the **Report Templates** page to manage the report templates which you want to make available to the Silk Central applications for reporting. Report templates are globally available to all reports across all projects.

Click **Upload** to upload a new report template from your hard disk or a UNC to Silk Central.

For each listed report, the page displays the following columns:

Column	Description
Title	The name of the report template as it displays in the application's GUI.
File Name	The physical file name of the report template.
Uploaded On	Date when the report template was uploaded to Silk Central.
Uploaded By	The user who uploaded the report template to Silk Central.
Module	The Silk Central application which may access the reporting template. If a template is assigned to no module, then any application can use it.
Actions	This column contains action icons which allow the user to perform the following actions on a report template: **Update** Replaces the currently uploaded template with a new one. **Download** Downloads the template to your local computer. **Delete** Deletes the template permanently.

Audit Log

Administration > **Log Files** > **Audit Log**

The audit log allows administrators to view all recorded Silk Central user activity. The log file stores all login and logout information, as well as all changes to the Silk Central database, for example projects, monitors, and schedules.

You can manage the listed log entries to suit your information needs by using the available features.

Sorting Data by Column

Clicking a column header sorts all listed data by that column. Clicking the same column header multiple times toggles the sort order between ascending and descending.

Selecting a Range From the Calendar

Click the displayed time range to expand the calendar. The **From** and **To** rows of the calendar allow you to specify start and end times for the period of time for which you want to view data. After specifying **From** and **To** times with the list boxes, click **Update** to update the audit log based on the new time range.

The **day**, **week**, **month**, **quarter**, **[last 7 days]**, **[last 31 days]** links allow you to bypass the calendar and instead view information for set time periods.

You can also use the **Forward** and **Backward** arrows to increase and decrease the selected time range by the following intervals:

- one day
- one week
- one month
- one quarter

Use and for increasing and decreasing the range of time covered by the audit log. Clicking one time enlarges the period of time by 50%. Clicking one time reduces the period of time by 50%.

When the calendar displays a custom interval, for example after zooming in or out, you can use the left-most arrows, **Earlier** and **Later**, to move the selected period of time forward or backward in time by half of the selected interval.

Tip: After specifying a new time period, click **Update** to update the report.

Filtering Data

Filter options enable you to better target the audit log information you want to analyze.

You can filter listed data by:

Login	Displays the actions of a specified user login.
Object	Displays actions taken on a specified database item, for example project, monitor, or location.
Operation	Displays selected operations, for example login, logoff, create, or delete.

Accessing and Viewing the Audit Log

To view the audit log:

1. In the menu, click **Administration** > **Log Files**.
2. Click the **Audit Log** tab.
3. Select a calendar range to limit the listed log entries.
4. Use the filter options to better target the audit log information you want to analyze.

Audit Log Page

Administration > **Log Files** > **Audit Log**

Use the **Audit Log** page to view all recorded Silk Central user activity.

Item	Description
Calendar area	Select a calendar range to limit the listed log entries.
Filter area	Use the filter options to better target the audit log information you want to analyze. Click **Update** to refresh the list according to your filter settings.

Item	Description
Result area	This section displays the logged information. Use the page numbers to move between pages. Click the column headers to sort by the defined column.

For detailed information about the calendar and filtering options, see *Audit Log*.

Server Log Files

The front-end server, the application server, and the execution server write log files. These files provide valuable information for error analysis. Silk Central allows administrators to view, search, and download these files directly from its Web interface.

Downloading Server Log Files

You can download a server log file to your local computer in CSV format to allow for further data analysis, for example in Microsoft Excel.

To download a server log file:

1. In the menu, click **Administration** > **Log Files** .
2. Click the tab of the server to which the log file belongs.
   - **Front-end Server Log**
   - **Application Server Log**
   - **Execution Server Log**

   A list of log files is displayed in chronological order. Log file names are made up of server component name and a suffix with a timestamp. The current log files are named `FrontendServer.log`, `AppServer.log`, and `ExecServer.log`.

   Note: To locate an execution server log file, navigate to the respective execution server through its location.
3. In the **Actions** column of the log file, click .

   Alternative: To view the contents of the log file before downloading it, click the name of the log file you want to download. The selected log file displays, along with chronologically sorted log entries. Click **Download as CSV** at the bottom of the page.
4. To view the data in a spreadsheet program, select **Open** on the subsequent dialog box. To save the data on your hard drive, select **Save** on the subsequent dialog box.

Analyzing Server Log Files

To analyze a server log file:

1. In the menu, click **Administration** > **Log Files** .
2. Click the tab of the server to which the log file belongs.
   - **Front-end Server Log**
   - **Application Server Log**
   - **Execution Server Log**

   A list of log files is displayed in chronological order. Log file names are made up of server component name and a suffix with a timestamp. The current log files are named `FrontendServer.log`, `AppServer.log`, and `ExecServer.log`.

   Note: To locate an execution server log file, navigate to the respective execution server through its location.

3. Click the name of the log file you want to view. The selected log file is displayed, along with chronologically sorted log entries.
4. Filter options allow you to page recorded log information.

   You can filter listed data by:

   Severity Displays events of a selected severity.

   - error
   - warning
   - informational

   Log level Displays events that match a selected log level.

   - overview
   - detailed
   - verbose
   - debug

   More detailed log information can only be displayed when the log level is set accordingly on the server. For more information about configuring a server's log level, see *Log Levels*.

   Module Displays log information for a selected module. Log entries can only be displayed when the respective products (modules) are installed and connected to the front-end server that is being accessed.

Deleting Server Log Files

Caution: Deleting a log file permanently removes the file from the server. You will not be able to view log data from the deleted file anymore.

To delete a server log file:

1. In the menu, click **Administration** > **Log Files** .
2. Click the tab of the server to which the log file belongs.

   - **Front-end Server Log**
   - **Application Server Log**
   - **Execution Server Log**

   A list of log files is displayed in chronological order. Log file names are made up of server component name and a suffix with a timestamp. The current log files are named `FrontendServer.log`, `AppServer.log`, and `ExecServer.log`.

   Note: To locate an execution server log file, navigate to the respective execution server through its location.
3. In the **Actions** column of the log file you want to delete, click ✕. A confirmation dialog box displays.
4. Click **No** to avoid deleting the log file; or click **Yes** to remove the log file from the list.

   If you choose **Yes**, the list of log files redisplays, with the deleted log file no longer listed.

Log File Management

Each of the Silk Central servers writes its activities to log files. For more information about Silk Central servers, see *Architecture*. When application errors or system failures occur, these log files provide valuable information regarding the root causes of problems. You can customize the level of detail that is written to server log files.

The log files for the Silk Central servers are accessible through **Administration** > **Log Files**.

Changing Log Levels of the Silk Central Servers

The following servers generate log files:

- Front-end server
- Application server
- Execution server

To change the log level of a Silk Central server:

1. Stop the server for which you want to change the log level.
2. Open the appropriate file with a text editor, depending on the server for which you want to change the log level:

Front-end server	`SccFrontendBootConf.xml`, located in the `/conf/frontendserver` folder of the Silk Central directory on the front-end server.
Application server	`SccAppServerBootConf.xml`, located in the `/conf/appserver` folder of the Silk Central directory on the application server.
Execution server	`SccExecServerBootConf.xml`, located in the `/conf/execserver` folder of the Silk Central directory on the execution server(s).

3. Locate the `<LogLevel>` XML tag in the `<Log>` section of the file.
4. Set the value to the log level at which you want the server to write information. The following log levels are available:

Value	Log level	Description
0	Overview	The server writes only the most important information to the log files. This is the default setting.
1	Detailed	The server writes additional information to the log files: **Front-end server**: Connection- and event-dispatcher information. **Application server**: Result-writer and result-fetcher activities. **Execution server**: Transaction-execution activities.
2	Verbose	The server writes additional information to the log files: **Front-end server**: User administration information, for example cookie management. **Application server**: Detailed result-writer and result-fetcher information. **Execution server**: Detailed transaction-execution and bandwidth information.
3	Debug	This is the most detailed log level and should only be used for debugging severe issues.

5. Save and close the XML file, then restart the server.

Front-End Server Log Page

Administration > **Log Files** > **Front-end Server Log**

Use this page to view logging information from the Silk Central front-end server service.

For each log file, the page displays the following columns:

Column	Description
Actions	Click the buttons and to **Delete** or **Download** log files.

Column	Description
Name	The name of the log file.
Size	The physical size of the log file.
Date	Date when the log file was last physically saved.

Administration > **Log Files** > **Front-end Server Log** > **Front-end server log file name** .

When clicking on the name of a log file, the logging details list displays. The list includes the following items:

Item	Description
Filter area	Use the filter options to filter the log list information by `severity`, `log level`, and `module`. Click **Update** to refresh the list according to your filter settings.
Table area	Displays the following logging information: **Severity** — Severity of the event: • Info • Warning • Error **Log Level** — Log level of the event: • `OV` = Overview • `DT` = Detailed • `VB` = Verbose • `DB` = Debug

Click **Back** to return to the **Front-end Server Log** page. Click **Download as CSV** to download the log file as a CSV file to your local computer.

Application Server Log Page

Administration > **Log Files** > **Application Server Log**

Use this page to view logging information from the Silk Central application server service.

For each log file, the page displays the following columns:

Column	Description
Actions	Click the buttons and to **Delete** or **Download** log files.
Name	The name of the log file.
Size	The physical size of the log file.
Date	Date when the log file was last physically saved.

Administration > **Log Files** > **Application Server Log** > **Application server log file name** .

When clicking on the name of a log file, the logging details list displays. The list includes the following items:

Item	Description
Filter area	Use the filter options to filter the log list information by `severity`, `log level`, and `module`. Click **Update** to refresh the list according to your filter settings.
Table area	Displays the following logging information: **Severity** — Severity of the event: • Info • Warning • Error **Log Level** — Log level of the event: • `OV` = Overview • `DT` = Detailed • `VB` = Verbose • `DB` = Debug

Click **Back** to return to the **Application Server Log** page. Click **Download as CSV** to download the log file as a CSV file to your local computer.

Execution Server Log Page

Administration > **Log Files** > **Execution Server Log**

Use this page to view logging information from the Silk Central execution server service.

For each location, the page displays the following columns:

Column	Description
Location	Displays all available locations.
Execution Servers	Displays the amount of execution servers per location.
Status	Displays a summary status of the execution servers in the location.

Administration > **Log Files** > **Execution Server Log** > **Location name**

When clicking on the name of a location, the list of execution servers in the selected location displays. The list displays the following columns for each execution server.

Column	Description
Execution Server Name	The name of the execution server.
Host	The name of the computer hosting the execution server.
Type	The Silk Central application that the execution server is configured for. For Silk Central, the type is always *Silk Central*.
Assigned Tasks	The amount of tasks that are currently scheduled on the execution server.
Status	The status of the execution server. `Active` or `Inactive`.

Click **Back** to return to the list of locations.

Administration > **Log Files** > **Execution Server Log** > **Location name** > **Execution server name**

When clicking on the name of an execution server, the list of log files for the selected execution server displays. For each log file, the page displays the following columns:

Column	Description
Actions	Click the buttons and to **Delete** or **Download** log files.
Name	The name of the log file.
Size	The physical size of the log file.
Date	Date when the log file was last physically saved.

Click **Back** to return to the list of execution servers.

Administration > **Log Files** > **Execution Server Log** > **Location name** > **Execution server name** > **Execution server log file name**

When clicking on the name of a log file, the logging details list displays. The list includes the following items:

Item	Description
Filter area	Use the filter options to filter the log list information by `severity`, `log level`, and `module`. Click **Update** to refresh the list according to your filter settings.
Table area	Displays the following logging information: **Severity** — Severity of the event: • Info • Warning • Error **Log Level** — Log level of the event: • OV = Overview • DT = Detailed • VB = Verbose • DB = Debug

Click **Back** to return to the **Execution Server Log** page. Click **Download as CSV** to download the log file as a CSV file to your local computer.

Integrating Task Management Tools

A variety of external task management tools can integrate their tests with Silk Central through the Agile project template.

The Agile project template is a Silk Central project with the preselected attributes release and sprint. When you create a project based on the Agile project template, an empty subfolder and test container are created for the new project. The external task management tool can then insert tests into the template. For information about how to create a project based on the Agile project template, see *Adding Projects*.

The task management tools that are currently supported by Silk Central “out of the box” are:

Task Management Tool	Description
VersionOne	VersionOne is a project planning and management tool specifically designed for agile software development. It incorporates agile and iterative management practices such as release planning, iteration planning and tracking, user story or backlog item management, and task management.

Integrating VersionOne in Silk Central

To integrate tests from VersionOne into Silk Central:

1. Add a new Silk Central project and apply the Agile project template to the project.

   For information on how to add a project based on the Agile template to Silk Central, see *Adding Projects*.
2. Open the file Explorer.
3. Navigate to the VersionOne configuration XML file, `VersionOneConfig.xml`.

   The default path for the file is `C:\Program Files\Silk\Silk Central <version>\wwwrootAS\VersionOneIntegration`.
4. Open the VersionOne configuration XML file with an editor.
5. Configure the VersionOne configuration XML file with the appropriate settings.

   For detailed information on the settings in the VersionOne configuration XML file, refer to the comments in `VersionOneConfig.xml`.
6. Save and close the configuration file.

   Note: You do not need to restart the application server after you edit the configuration file because the file is automatically updated.
7. In Silk Central, navigate to the **Tests** area. The empty test container is displayed as incomplete, because you have to select a product.
8. Click on the container, select the **Properties** tab, and click on the product link to browse for the product.

VersionOne is now integrated with Silk Central. New test tasks in VersionOne, for which you have defined the appropriate user, are inserted as manual tests into the default integration folder in the defined Silk Central project. The test status is now exchanged between Silk Central and VersionOne.

Refer to the `VersionOneIntegration.log` log file for information about changes to the VersionOne integration. The default path for the log file is `C:\ProgramData\SilkCentral\log\`.

Note: To integrate VersionOne with a Japanese Silk Central, change the start options of the Application Server service in the registry to `-Dfile.encoding=utf-8`.

Managing Products and Platforms

Silk Central enables you to create and organize products, product components, versions of products, and build numbers of product versions. Product specifications can then be associated with tests, versions and builds can be associated with execution plans. You can even import products and components that were defined previously in Issue Manager.

- *Components* are discrete product elements that are tracked separately for testing purposes.
- *Versions* are product releases that are tracked separately for development and testing purposes.
- *Builds* are iterations of versions that are tracked separately for development and testing purposes.

Silk Central also enables you to set up platform designations for tests, for example operating systems. As with product, version, and build setup, platforms can be assigned names, descriptions, and active/inactive status.

Managing Builds

Builds are iterations of versions that are tracked separately for development and testing purposes.

Adding Builds

To add a new build to a version:

1. In the menu, click **Administration** > **Products, Versions and Builds** .
2. Click the **Products** tab. The **Products** page displays, listing all existing products.
3. Click a product name. The **Product Detail** page for the product opens.
4. In the **Builds for Version** list box, select the version for which you want to add a build.
5. Click **New Build**. The **New Build** dialog box displays.
6. Type a name for the new build in the **Name** text box.
7. Type a description for the build in the **Description** text box.
8. Check the **Active** check box to make this build available for association with versions.
9. Click **OK** to save the build, or click **Cancel** to abort the operation.

Editing Builds

To edit an existing build within a version:

1. In the menu, click **Administration** > **Products, Versions and Builds** .
2. Click the **Products** tab. The **Products** page displays, listing all existing products.
3. Click a product name. The **Product Detail** page for the product opens.
4. Select the build you want to edit.
5. The **Edit Build** dialog box displays, detailing the **Name**, **Description**, and **Active** status of the selected build. Make all required changes, then click **OK**.
6. Check the **Tagged** check box to tag the build.

Activating and Deactivating Builds

To activate or deactivate an existing build:

1. In the menu, click **Administration** > **Products, Versions and Builds** .
2. Click the **Products** tab. The **Products** page displays, listing all existing products.
3. Click a product name. The **Product Detail** page for the product opens.
4. Click the **Status** icon associated with the build you want to activate or deactivate. A confirmation dialog box displays, asking you if you are sure about the activation or deactivation.
5. Confirm the message to toggle the build status to `active` or `inactive`.

Sorting the Builds List

To move a build up or down in the list or sort the builds list alphabetically by name:

1. In the menu, click **Administration** > **Products, Versions and Builds** .
2. Click the **Products** tab. The **Products** page displays, listing all existing products.
3. Click a product name. The **Product Detail** page for the product opens.
4. In the **Builds for Version** list box, select the version for which you want to see the builds.
5. In the **Actions** column of the item you want to move, click or .
6. To sort the list alphabetically by name, click **Sort by Name**.

Tagging Builds

To tag an existing build:

Note: You can delete runs of tagged builds. If the selection of the runs that you are trying to delete contains tagged builds, then you get a warning and you have to confirm the action. Tagged builds will not get deleted if you perform a bulk delete (all or for a specific time span) by right clicking on the execution node.

1. In the menu, click **Administration** > **Products, Versions and Builds** .
2. Click the **Products** tab. The **Products** page displays, listing all existing products.
3. Click a product name. The **Product Detail** page for the product opens.
4. In the **Builds** section, click in the **Actions** column of the build that you want to tag. A confirmation dialog box displays.
5. Click **Yes** to continue with the tagging or click **No** to abort the tagging.

Deleting Builds

To delete an existing build from a version:

1. In the menu, click **Administration** > **Products, Versions and Builds** .
2. Click the **Products** tab. The **Products** page displays, listing all existing products.
3. Click a product name. The **Product Detail** page for the product opens.
4. Deactivate the build you want to delete.
   For additional information, see *Activating and Deactivating Builds*.
5. In the actions column of the build, click . A confirmation dialog box displays.
6. Click **Yes** to continue with the deletion or click **No** to abort the deletion.

Managing Components

Components are discrete product elements that are tracked separately for testing purposes.

Adding Components

To add a new component to a product:

1. In the menu, click **Administration** > **Products, Versions and Builds** .
2. Click the **Products** tab. The **Products** page displays, listing all existing products.
3. Click a product name. The **Product Detail** page for the product opens.
4. Click **New Component**. The **New Component** dialog box displays.
5. Type a name for the new component in the **Name** text box.
6. Type a description for the component in the **Description** text box.
7. Select the **Type** of the component.
   Available values are `Software` and `Documentation`.
8. Check the **Active** check box to make this component available for association with products.
9. Click **OK** to save the component, or click **Cancel** to abort the operation.

Editing Components

To edit an existing component within a product:

1. In the menu, click **Administration** > **Products, Versions and Builds** .
2. Click the **Products** tab. The **Products** page displays, listing all existing products.

3. Click a product name. The **Product Detail** page for the product opens.
4. Select the component you want to edit.
5. The **Edit Component** dialog box displays, detailing the **Name**, **Description**, and **Active** status of the selected component. Make all required changes, then click **OK**.

Note: The type of a component can only be edited if you deactivate the component first. For additional information, see *Activating and Deactivating Components*.

Activating and Deactivating Components

To activate or deactivate an existing component:

1. In the menu, click **Administration** > **Products, Versions and Builds** .
2. Click the **Products** tab. The **Products** page displays, listing all existing products.
3. Click a product name. The **Product Detail** page for the product opens.
4. Click the **Status** icon associated with the component you want to activate or deactivate. A confirmation dialog box displays, asking you if you are sure about the activation or deactivation.
5. Confirm the message to toggle the component status to `active` or `inactive`.

Sorting the Components List

To move a component up or down in the list or sort the components list alphabetically by name:

1. In the menu, click **Administration** > **Products, Versions and Builds** .
2. Click the **Products** tab. The **Products** page displays, listing all existing products.
3. Click a product name. The **Product Detail** page for the product opens.
4. In the **Component Type** list box, select the component type for which you want to see the components.
5. In the **Actions** column of the item you want to move, click or .
6. To sort the list alphabetically by name, click **Sort by Name**.

Deleting Components

To delete an existing component from a product:

1. In the menu, click **Administration** > **Products, Versions and Builds** .
2. Click the **Products** tab. The **Products** page displays, listing all existing products.
3. Click a product name. The **Product Detail** page for the product opens.
4. Deactivate the component you want to delete.
   For additional information, see *Activating and Deactivating Components*.
5. In the actions column of the component, click . A confirmation dialog box displays.
6. Click **Yes** to continue with the deletion or click **No** to abort the deletion.

Managing Platforms

Set up platform designations for tests, for example operating systems. As with product, version, and build setup, platforms can be assigned names, descriptions, and active or inactive status.

Adding Platforms

To add a new platform:

1. In the menu, click **Administration** > **Products, Versions and Builds** .
2. Click the **Platforms** tab. The **Platforms** page displays, listing all existing platforms.

3. Click **New Platform**. The **New Platform** dialog box displays.
4. Type a name for the new platform in the **Name** text box.
5. Type a description for the platform in the **Description** text box.
6. Check the **Active** check box to make this platform available for association with tests.
7. Click **OK** to save the platform.

Editing Platforms

To edit an existing platform:

1. In the menu, click **Administration** > **Products, Versions and Builds** .
2. Click the **Platforms** tab. The **Platforms** page displays, listing all existing platforms.
3. In the **Actions** column of the platform that you want to edit, click .
4. The **Edit Platform** dialog box displays, detailing the **Name**, **Description**, and **Active** status of the selected platform. Make all required changes, then click **OK**.

Activating and Deactivating Platforms

Note: Platforms that are associated with a test cannot be deactivated.

To activate or deactivate an existing platform:

1. In the menu, click **Administration** > **Products, Versions and Builds** .
2. Click the **Platforms** tab. The **Platforms** page displays, listing all existing platforms.
3. Click the **Status** icon associated with the platform you want to activate or deactivate. A confirmation dialog box displays, asking you if you are sure about the activation or deactivation.
4. Confirm the message to toggle the platform status to `active` or `inactive`.

Sorting the Platforms List

To move a platform up or down in the list or sort the platforms list alphabetically by name:

1. In the menu, click **Administration** > **Products, Versions and Builds** .
2. Click the **Platforms** tab. The **Platforms** page displays, listing all existing platforms.
3. In the **Actions** column of the item you want to move, click or .
4. To sort the platforms list alphabetically by name, click **Sort by Name**.

Deleting Platforms

To delete an existing platform:

1. In the menu, click **Administration** > **Products, Versions and Builds** .
2. Click the **Platforms** tab. The **Platforms** page displays, listing all existing platforms.
3. Deactivate the platform you want to delete.
   For additional information, see *Activating and Deactivating Platforms*.
4. In the **Actions** column of the platform that you want to delete, click . A confirmation dialog box displays.
5. Click **Yes** to continue with the deletion or click **No** to abort the deletion.

Platform Configuration Page

Administration > **Platforms**

Use this page to configure platforms.

To create a new platform, click **New Platform**. For additional information, see *Adding Platforms*.

To sort the platforms list alphabetically by name, click **Sort by Name**. For additional information, see *Sorting the Platforms List*.

For each listed platform, the page displays the following columns:

Columns	Description
Actions	The user can perform the following actions on a platform: Moves the platform up one row in the list. Moves the platform down one row in the list. Deletes the platform permanently. Platforms need to be inactive before you can delete them, and deletion is not allowed if a platform is already associated to a test.
Name	The name of the platform as it displays in the GUI and in reports. Click the name of a platform to modify the name, description, and status of the platform.
Description	A textual description of the platform.
Status	The status of the platform, `Active` or `Inactive`. Click the status to toggle between `Active` and `Inactive`.
Created On	Date when the platform was created.
Created By	The user who created the platform.

Managing Products

Describes how to configure products in Silk Central.

Adding Products

To add a new product:

1. In the menu, click **Administration** > **Products, Versions and Builds** .
2. Click the **Products** tab. The **Products** page displays, listing all existing products.
3. Click **New Product**. The **New Product** dialog box displays.
4. Type a name for the new product in the **Name** text box.
5. Type a description for the product in the **Description** text box.
6. Check the **Active** check box to make this product available for association with tests.
7. Click **OK** to save the product.

Note: When creating a product, Silk Central automatically creates a new default version `1.0` and a new default build `1` for the new product.

Editing Products

To edit an existing product:

1. In the menu, click **Administration** > **Products, Versions and Builds** .
2. Click the **Products** tab. The **Products** page displays, listing all existing products.
3. In the **Actions** column of the product that you want to edit, click . The **Edit Product** dialog box displays.
4. Make all required changes to the **Name**, **Description**, and **Active** status of the selected product, then click **OK**.

Activating and Deactivating Products

To activate or deactivate an existing product:

1. In the menu, click **Administration** > **Products, Versions and Builds** .
2. Click the **Products** tab. The **Products** page displays, listing all existing products.
3. Click the **Status** icon associated with the product you want to activate or deactivate. A confirmation dialog box displays, asking you if you are sure about the activation or deactivation.
4. Confirm the message to toggle the product status to `active` or `inactive`.

Sorting the Products List

To move a product up or down in the list or sort the products list alphabetically by name:

1. In the menu, click **Administration** > **Products, Versions and Builds** .
2. Click the **Products** tab. The **Products** page displays, listing all existing products.
3. In the **Actions** column of the item you want to move, click or .
4. To sort the list alphabetically by name, click **Sort by Name**.

Deleting Products

To delete an existing product:

1. In the menu, click **Administration** > **Products, Versions and Builds** .
2. Click the **Products** tab. The **Products** page displays, listing all existing products.
3. Deactivate the product you want to delete.

   For additional information, see *Activating and Deactivating Products*.
4. In the **Actions** column of the product that you want to delete, click . A confirmation dialog box displays.
5. Click **Yes** to continue with the deletion or click **No** to abort the deletion.

Product Configuration Page

Administration > **Products, Versions, and Builds** > **Products**

Use this page to configure products, components, versions, and builds.

Click **New Product** to create a new product. Click **Sort by Name** to sort the products alphabetically by name.

For each listed product, the page displays the following columns:

Column	Description
Actions	You can perform the following actions on a product:

Column	Description
	Moves the product up one row in the list. Moves the product down one row in the list. Edit the name, description, and status of the product. Deletes the product permanently. Products need to be inactive before you can delete them, and deletion is not allowed if a product is already associated to a test.
Name	The name of the product as it displays in the GUI and in reports. Click the name of a product to modify the product's components, versions, and builds.
Description	A textual description of the product.
Status	The status of the product, `Active` or `Inactive`. Click the status to toggle between `Active` and `Inactive`.
Created On	Date when the product was created.
Created By	The user who created the product.

For a selected product, the page displays the details of the included components, versions, and builds.

The page displays the following columns for the components of the product:

Column	Description
Actions	You can delete the component in this column.
Name	The name of the component. Click to open the **Edit Component** dialog box.
Description	The description of the component.
Created On	Date when the component was created.
Created By	The user who created the component.
Status	The status of the component. `Active` or `Inactive`. Click to toggle the status.

Click **New Component** to create a new component. Click **Sort by Name** to sort the components alphabetically by name. Click **Update** to update the components list.

The page displays the following items for the versions of the product:

Item	Description
Actions	You can delete the version in this column, or move the version up or down in the list.
Name	The name of the version. Click to open the **Edit Version** dialog box.
Description	The description of the version.
Created On	Date when the version was created.
Created By	The user who created the version.

Item	Description
Status	The status of the version. `Active` or `Inactive`. Click to toggle the status.

Click **New Version** to create a new version. Click **Sort by Name** to sort the versions alphabetically by name.

The page displays the following items for the builds of the product:

Item	Description
Actions	You can delete the build or tag the build.
Name	The name of the build. Click to open the **Edit Build** dialog box.
Description	The description of the build.
Created On	Date when the build was created.
Created By	The user who created the build.
Status	The status of the build. `Active` or `Inactive`. Click to toggle the status.

Click **New Build** to create a new build. Click **Sort by Name** to sort the builds list alphabetically by name. Click **Update** to update the components list.

Note: You have to select a specific version in the **Builds** list box to enable these buttons.

Click **Back** to return to the product list.

Managing Versions

Versions are product releases that are tracked separately for development and testing purposes.

Adding Versions

To add a new version to a product:

1. In the menu, click **Administration** > **Products, Versions and Builds** .
2. Click the **Products** tab. The **Products** page displays, listing all existing products.
3. Click a product name. The **Product Detail** page for the product opens.
4. Click **New Version**. The **New Version** dialog box displays.
5. Type a name for the new version in the **Name** text box.
6. Type a description for the version in the **Description** text box.
7. Check the **Active** check box to make this version available for association with products.
8. Click **OK** to save the version, or click **Cancel** to abort the operation.

Editing Versions

To edit an existing version within a product:

1. In the menu, click **Administration** > **Products, Versions and Builds** .
2. Click the **Products** tab. The **Products** page displays, listing all existing products.
3. Click a product name. The **Product Detail** page for the product opens.
4. Select the version you want to edit. The **Edit Version** dialog box displays.

5. Make all required changes to the **Name**, **Description**, and **Active** status of the selected version, then click **OK**.

Activating and Deactivating Products

To activate or deactivate an existing product:

1. In the menu, click **Administration** > **Products, Versions and Builds** .
2. Click the **Products** tab. The **Products** page displays, listing all existing products.
3. Click the **Status** icon associated with the product you want to activate or deactivate. A confirmation dialog box displays, asking you if you are sure about the activation or deactivation.
4. Confirm the message to toggle the product status to `active` or `inactive`.

Sorting the Versions List

To move a version up or down in the list or sort the versions list alphabetically by name:

1. In the menu, click **Administration** > **Products, Versions and Builds** .
2. Click the **Products** tab. The **Products** page displays, listing all existing products.
3. Click a product name. The **Product Detail** page for the product opens.
4. In the **Actions** column of the item you want to move, click or .
5. To sort the list alphabetically by name, click **Sort by Name**.

Deleting Versions

To delete an existing version from a product:

1. In the menu, click **Administration** > **Products, Versions and Builds** .
2. Click the **Products** tab. The **Products** page displays, listing all existing products.
3. Click a product name. The **Product Detail** page for the product opens.
4. Deactivate the version you want to delete.
   For additional information, see *Activating and Deactivating Versions*.
5. In the **Actions** column of the product that you want to delete, click . A confirmation dialog box displays.
6. Click **Yes** to continue with the deletion or click **No** to abort the deletion.

Maintaining Value Lists

Value lists are used to populate custom properties within custom issue tabs that can be configured for Issue Manager in **Issues** > **Configuration** . For details regarding custom issue properties and tabs, see the *Issue Manager* topics in this Help.

Adding Value Lists

To add a new value list:

1. In the menu, click **Administration** > **Lists of Values** .
2. Click **New List**. The **New List Of Values** dialog box displays.
3. Type a name for the new value list in the **Name** text box and a description for the value list in the **Description** text box.
4. From the **Grouped by** list box, select a parameter by which this list is to be grouped.

   This selection is definite and cannot be edited once you save your new list. Grouping values means that each value in your list must be assigned a value from the list you selected in the **Grouped by** list box. Not grouping values means that you can define custom values manually.

5. Click **New Value** to add a value to the list. The **New Value** dialog box displays.
6. Type a **Name** and **Description** for the new value.
7. Select a value from the **Grouped by** list box, if applicable.
8. Select the position of the new value within the list of existing values from the **Insert after** list box, or select `<last entry>` to add the new value to the end of the list.
9. Click **OK** to save the value. The **New List Of Values** dialog box displays the newly added value.
10. Add as many additional values as are required to complete the value list.
11. Click **OK** to save the value list.

Editing Value Lists

To edit an existing value list:

1. In the menu, click **Administration** > **Lists of Values** .
2. Click the name of the value list you want to edit. The **Edit List of Values** dialog box displays.
3. Change the **Name**, **Description**, and **Group by** setting of the selected value list, then click **OK**.

Note: Each individual value that is configured for the list is also available for editing. For details on editing individual values, see *Editing Individual Values*.

Editing Individual Values

To edit an individual value within a value list:

1. In the menu, click **Administration** > **Lists of Values** .
2. Click the name of the value list you want to edit. The **Edit List of Values** dialog box displays.
3. Click the name of the value you want to edit. The **Edit Value** dialog box displays.
4. Edit the **Name** and **Description** of the value as required.
5. Click **OK** to save your changes.

Activating and Deactivating Value Lists

Note: You cannot deactivate the value list *Issue Types*, as this list is required by Issue Manager.

To activate or deactivate an existing value list:

1. In the menu, click **Administration** > **Lists of Values** .
2. Click the **Status** icon associated with the value list you want to activate or deactivate. A confirmation dialog box displays, asking you if you are sure about the activation or deactivation.
3. Confirm the message to toggle the value list status to `Active` or `Inactive`.

Note: Each individual value that is configured for the list can also be activated or deactivated. For details on activating or deactivating individual values, see *Activating and Deactivating Individual Values*.

Activating and Deactivating Individual Values

To activate or deactivate an individual value within a value list:

1. In the menu, click **Administration** > **Lists of Values** .
2. Click the name of the value list that includes the value you want to activate or deactivate. The **Edit List of Values** dialog box displays.
3. Click the **Status** icon associated with the value you want to activate or deactivate. A confirmation dialog box displays.

4. Click **OK** to save the updated value list.

Sorting Values within Value Lists

To move a value up or down within a value list or sort the value list alphabetically by value name:

1. In the menu, click **Administration** > **Lists of Values** .
2. Click the name of the value list that includes the value you want to sort. The **Edit List of Values** dialog box displays.
3. In the **Actions** column of the item you want to move, click or .
4. To sort the value list alphabetically by value name, click **Sort by Value**. The **Sort By Value** dialog box displays.
5. Select the sort order, `Ascending` or `Descending` and click **OK**.
6. Click **OK** on the **Edit List Of Values** dialog box to save the updated value list.

Deleting Value Lists

To delete an existing value list:

1. In the menu, click **Administration** > **Lists of Values** .
2. Deactivate the value list you want to delete.
   For additional information, see *Activating and Deactivating Value Lists*.
3. In the Actions column of the value list that you want to delete, click . A confirmation dialog box displays.
4. Click **Yes** to continue with the deletion or click **No** to abort the deletion.

Note: Each individual value that has been configured for the list is also available for deletion. For details on deleting individual values, see *Deleting Individual Values*.

Deleting Individual Values

To delete an individual value within a value list:

1. In the menu, click **Administration** > **Lists of Values** .
2. Click the name of the value list that includes the value you want to delete. The **Edit List of Values** dialog box displays.
3. Deactivate the value you want to delete. For additional information, see *Activating and Deactivating Individual Values*.
4. In the **Actions** column of the value that you want to delete, click .
5. Click **OK** on the **Edit List Of Values** dialog box to save the updated value list.

List of Values Configuration Page

Administration > **Lists of Values**

Use this page to configure value lists. For each listed list of values, the page displays the following columns:

Column	Description
Name	The name of the value list as it displays in the GUI and in reports. Click the name of a value list to modify the name, description, and values of the value list.

Column	Description
Grouped By	Displays if a value list is grouped by `Product` or `Issue Types`, or if it is `Not Grouped`.
Status	The status of the value list, `Active` or `Inactive`. Click the status to toggle the between `Active` and `Inactive`. The default value list, *Issue Types*, cannot be deactivated, because it is a key component used in Issue Manager.
Created On	Date when the value list was created.
Created By	The user who created the value list.
Changed On	Date when the value list was last modified.
Changed By	The user who last modified the value list.
Actions	You can perform the following actions on a value list: ✕ Deletes the value list permanently. Value lists need to be inactive before you can delete them, and deletion is not allowed if a value list is already associated with issues.

Click **New List** to create a new value list.

Configuring Global Schedules

You can define global schedules that can be re-used in Silk Central for the scheduling of execution plans. Global schedules speed up the process of scheduling execution plans since the need to define individual schedules is reduced to only those execution plans that require special scheduling. For detailed information on schedules, refer to the *Silk Central Help*.

Exclusions

You can define weekdays and time-of-day intervals during which tests are not to be executed. For example, you may not want tests to take place on weekends.

Definite Runs

You can define points in time at which tests must execute, regardless of configured schedules.

Adding Global Schedules

To add a new global schedule:

1. In the menu, click **Administration** > **Schedules** . The **Schedules** page displays, listing all existing global schedules.
2. Click **New Schedule**. The **Configure Schedule** page displays.
3. Type a name for the new schedule in the **Name** text box.
4. Type a description for the schedule in the **Description** text box.
5. Click next to **From** to define a start date and time for the schedule.
6. Define the **Interval** at which an execution should repeat. The available time range is from 1 minute to 36 days.
7. Check the **Adjust schedule to daylight savings** check box to have scheduled executions automatically adjust to daylight-saving time changes.

8. Click next to run to define the date and time at which execution should end. Click **Forever** to execute for an undefined time period, or **until** to execute for a defined period.
9. To define weekdays and time-of-day intervals at which the test should not execute, click **Add Exclusion**.

   For additional information, see *Scheduling Exclusions*.
10. To define a point in time when the test must execute, click **Add Definite Run**.

    For additional information, see *Scheduling Definite Runs*.
11. Click **Save** when you have finished defining the schedule.

Editing Global Schedules

To modify a global schedule:

1. In the menu, click **Administration** > **Schedules** . The **Schedules** page displays, listing all existing global schedules.
2. Click the name of the schedule you want to edit. The **Configure Schedule** page displays.
3. Change the name of the schedule in the **Name** text box.
4. Change the description of the schedule in the **Description** text box.
5. Click next to **From** to define a new start date and time for the schedule.
6. Change the **Interval** at which an execution should repeat. The available time range is from 1 minute to 36 days.
7. Check the **Adjust schedule to daylight savings** check box to have scheduled executions automatically adjust to daylight-saving time changes.
8. Click next to run to define the date and time at which execution should end. Click **Forever** to execute for an undefined time period, or **until** to execute for a defined period.
9. To define weekdays and time-of-day intervals at which the test should not execute, click **Add Exclusion**.

   For additional information, see *Scheduling Exclusions*.
10. To define a point in time when the test must execute, click **Add Definite Run**.

    For additional information, see *Scheduling Definite Runs*.
11. Click **Save** when you have finished modifying the schedule.

Activating and Deactivating Global Schedules

To activate or deactivate an existing product:

1. In the menu, click **Administration** > **Schedules** . The **Schedules** page displays, listing all existing global schedules.
2. Click the **Status** icon associated with the schedule that you want to activate or deactivate. A confirmation dialog box displays, asking you if you are sure about the activation or deactivation.
3. Confirm the message to toggle the schedule status to `Active` or `Inactive`.

Deleting Global Schedules

To delete an existing global schedule:

1. In the menu, click **Administration** > **Schedules** . The **Schedules** page displays, listing all existing global schedules.
2. In the **Actions** column of the schedule that you want to delete, click . A confirmation dialog box displays.
3. Click **Yes** to remove the current schedule, including all exclusions and definite runs, or click **No** to abort the deletion.

Note: Once a global schedule is in use by a test, you cannot delete it. You must first re-schedule all tests to another schedule.

Scheduling Exclusions

To schedule exclusions:

1. In the menu, click **Administration** > **Schedules** . The **Schedules** page displays, listing all existing global schedules.
2. Click the name of the schedule you want to edit.
3. On the **Configure Schedule** page, click **Add Exclusion**.
4. On the **Configure Schedule Exclusion** page, select the weekdays on which tests should be suppressed.
5. Define the specific time intervals on those days during which execution should be suppressed.
6. Click **OK** once you have completed definition of exclusion settings, or click **Cancel** to abort. Exclusion settings are now listed on the **Configure Schedule** page.
7. Click **Save** to add the exclusion to the current schedule, or continue adding additional exclusions.

Tip: You can edit and delete exclusions by clicking or in the **Actions** column of the exclusion that you want to modify.

Scheduling Definite Runs

To schedule definite runs:

1. In the menu, click **Administration** > **Schedules** . The **Schedules** page displays, listing all existing global schedules.
2. Click the name of the schedule you want to edit.
3. On the **Configure Schedule** page, click **Add Definite Run**.
4. On the **Configure Definite Run** page, click to define a point in time for the definite run.
5. Click **OK** once you have completed definition of the definite run, or click **Cancel** to abort. Definite run settings are now listed on the **Configure Schedule** page.
6. Click **Save** to add the definite run to the current schedule, or continue adding additional definite runs.

Tip: You can edit and delete definite runs by clicking or in the **Actions** column of the definite run that you want to modify.

Schedules Configuration Page

Administration > **Schedules**

Use this page to configure global schedules for Silk Central. For each schedule, the page displays the following columns:

Column	Description
Actions	This column contains action icons which allow the user to perform the following actions on a schedule: Deletes the schedule permanently. Deletion is not allowed if a schedule is already associated with execution plans.
Name	The name of the schedule as it displays in the GUI and in reports. Click the name of a schedule to modify the name, description, and status of the schedule.
Description	A textual description of the schedule.

Column	Description
Status	The status of the schedule, `Active` or `Inactive`. Click the status to toggle between `Active` and `Inactive`.
Created On	Date when the schedule was created.
Created By	The user who created the schedule.

Click **New Schedule** to create a new schedule.

Time Zones

Silk Central is designed to execute tests over a network of execution servers. Because the Internet enables such networks to be spread worldwide across multiple time zones, it is important to understand time-zone handling in Silk Central.

All date and time values are saved in GMT to the database. The presentation of values is set based on the **Time zone** setting specified in the user settings. For more information, see *Adding User Accounts*.

The following requirements apply:

- The application server and front-end server should be in the same time zone. Separating these servers locally within a WAN does not make sense because the application server communicates closely with one or several front-end servers. Also, front-end servers as well as the application server have direct database access.
- Execution servers may be in different time zones, separated both from the application server and from other execution servers.

Configuring Advanced Settings

This section describes how to configure advanced settings to customize your Silk Central system.

Login Options

The following two enhanced login configurations are available:

Remember Login

Changing the default setting for the **Remember login** option on the Silk Central login page.

Normally when users work with multiple browser windows, each browser session checks out a unique license. Enabling **Remember login** allows individual users to work with multiple browser sessions on a single computer while checking out only a single license.

Each user may enable or disable the **Remember login** option as required; the administrator can however set the default setting.

Cookie Duration

Each time a user accesses Silk Central, a cookie containing encoded login information is created. These cookies are destroyed when users log out, or when sessions time out. When the **Remember login** option is enabled however, cookies are not destroyed when sessions time-out. Instead, they remain active for a set duration of time. This enables users to continue working with Silk Central without re-entering login information after each session time-out. By default, cookies remain active for 30 days. The duration setting can be adjusted by the administrator.

Configuring the Remember Login Option

To enable or disable the remember login option:

1. Stop the front-end server.
2. Open the `SccFrontendBootConf.xml` file with a text editor.

   This file is located in the `/conf/frontendserver` folder of the Silk Central directory on the front-end server.
3. Locate the `BootConf\Options\Login\RememberLogin` XML tag.

   By default, the tag is set to `<RememberLogin>true</RememberLogin>`.
4. Set the value to `false` to have the login page open with an unchecked **Remember Login** check box by default. Set the value to `true` to have the login page open with a checked **Remember Login** check box by default.
5. Save and close the XML file.
6. Re-start the front-end server.

Adjusting the Cookie Duration

To set the duration of login cookies:

1. Stop the front-end server.
2. Open the `SccFrontendBootConf.xml` file with a text editor.

   This file is located in the `/conf/frontendserver` folder of the Silk Central directory on the front-end server.
3. Locate the `BootConf\Options\Login\MaxCookieAge` XML tag.

   By default, the tag is set to `<MaxCookieAge>30</MaxCookieAge>`.
4. Set the value to the number of days you want login cookies to remain active on user computers.
5. Save and close the XML file.
6. Re-start the front-end server.

Using the Silk Central Service Manager

The Silk Central Service Manager is a tool that is used to manage the Silk Central services and to view their log files. The following services are available:

- Front-end server
- Application server
- Chart server

Log Files

Silk Central servers write their activities to log files. When application errors or system failures occur, these log files provide valuable information regarding the root causes of problems.

Silk Central Services

Setup automatically installs the Service Manager when any of the four services are installed. You can access the Service Manager either from the Silk Central program group, or from its Windows task bar tray icon. The Windows services, which are viewable in the Windows Services window, are called *Silk Central <name> Server*, for example *Silk Central Application Server*.

All four services must be running to enable operation of Silk Central. The services can be distributed over different computers or run on a single machine. For information about installing services, refer to the *Installation Help*.

Tip: Stopping and restarting services is an administrative task that only needs to be done when a system is not operating as intended, or when maintenance tasks are required.

Silk Central Execution Server

Silk Central launches an execution server as Windows process, rather than as a Windows service. A Windows process is launched with the credentials of the currently logged in user, so an active user session is required in order for the execution server to function correctly. While a Windows service would have the advantage of still being available without an active user session, many test executions will not work without an active session, like for example Silk Test, Citrix, or SAP tests.

Managing Which Silk Central Services Shall Be Running At System Start

Silk Central services are services that will start automatically when the system is started. You can change this behavior if you want to deactivate a service.

To manage which individual Silk Central services shall be running at system start:

1. Double-click the **Silk Central Service Manager** tray icon in the Windows task bar. The *Silk Central Service Manager* displays, with up to four tabs visible, depending on the services that are installed on this computer.
2. Click the tab that corresponds to the service you want to access:
   - Silk Central Front-End Server
   - Silk Central Front-End Server (64-bit)
   - Silk Central Application Server
   - Silk Central Chart Server
3. Check the **Run at start-up** check box if you want the selected service to start automatically.
4. Click **OK** to finish managing the servers. The *Silk Central Service Manager* closes, but remains active in the system tray.

Starting or Stopping All Silk Central Services

Caution: Silk Central will not operate properly when the four services are not running.

To start or stop all Silk Central services at once:

1. Right-click the **Silk Central Service Manager** tray icon in the Windows task bar.
2. Click one of the following:

Start all Services	All Silk Central services currently installed on the computer begin running.
Stop all Services	All Silk Central services installed on the computer are stopped.

3. To start or stop individual services, see *Starting or Stopping Individual Services*.

Starting or Stopping Individual Silk Central Services

Caution: Silk Central will not operate properly when the four services are not running.

To start or stop individual services:

1. Double-click the **Silk Central Service Manager** tray icon in the Windows task bar. The *Silk Central Service Manager* displays, with up to four tabs visible, depending on the services that are installed on this computer.
2. Click the tab of the service you want to manage.
3. Click **Start** or **Stop** to start or stop the selected service.
4. Click **Query Status** to check the current status of a service.

   Note: Make sure the service status is `running` to enable the operation of Silk Central.

Note: This option is disabled for the front-end, application, and chart servers.

5. Click **OK** to finish managing the services. The Service Manager closes, but remains active in the system tray.

To start or stop the execution server service, use the Windows **Start** menu: **Start** > **All Programs** > **Silk** > **Silk Central 15.5** > **Start/Stop Execution Server**

Viewing Log Files from the Silk Central Service Manager Console

To view Silk Central log files from the Silk Central Service Manager console:

1. Double-click the **Silk Central Service Manager** tray icon in the Windows task bar. The *Silk Central Service Manager* displays, with up to four tabs visible, depending on the services that are installed on this computer.
2. Select the tab representing the server of which you want to view the log file.
3. Click the **Logfile** link of the server.

   The log file opens in the registered text editor. Microsoft Notepad by default.
4. On the Silk Central Service Manager, click **OK** or **Cancel** to close the Service Manager. The Service Manager closes, but remains active in the system tray.

Suspicious Execution Duration

The execution durations of tests vary, however if an execution takes too long, the user that made the last change to the execution plan can get notified by email.

Silk Central sends a notification when test execution takes longer than a certain amount of time. The user can define how long a test execution may take before an email is sent.

Note: You can also set a timeout for each specific test by setting the **Execution Time-Out [s]** property in the **Success Conditions** section of the **Tests** area.

Setting the Suspicious Execution Duration

To set the suspicious execution duration:

1. Stop the application server.
2. Open the `TmAppServerHomeConf.xml` file with a text editor.

   This file is located in the `/conf/appserver` folder of the Silk Central directory on the application server.
3. Locate the `Config\ExecutionTracking\SuspicousDuration` XML tag.

   By default, the tag is set to `<SuspicousDuration>360</SuspicousDuration>`.
4. Set the duration value to the number of minutes after which Silk Central should notify the administrator about test executions that take too long.
5. Save and close the XML file.
6. Restart the application server service.

Disable Updating of External Issue Statistics

Updating the issue statistics of external issue tracking profiles may use much memory. This may also slow down performance. To disable updating:

1. Stop the application server.
2. Open the `TmAppServerHomeConf.xml` file with a text editor.

   This file is located in the `/conf/appserver` folder of the Silk Central directory on the application server.

3. Locate the `Config/IssueStateUpdate/UpdateIssueUnitStatistics` XML tag.
   By default, the tag is set to `true`.
4. Set the value to false to disable updating.
5. Save and close the XML file.
6. Restart the application server service.

Date and Time Formats

Silk Central offers user-defined date and time format settings. Each Silk Central user can change their user settings, which include options for displaying custom date formats in the form of long or short date formats. For additional information, see *Editing User Accounts*.

Silk Central presents lists of pre-defined date and time formats from which users may choose. Silk Central administrators can populate these lists with customized formats.

Pattern Definition

Date and time formats are specified by date and time pattern strings. Within date and time pattern strings, unquoted letters from "A" to "Z" and from "a" to "z" are interpreted as pattern letters representing the components of a date or time string. Text can be quoted using single quotes (') to avoid interpretation. "''" represents a single quote. All other characters are not interpreted; they are simply copied into the output string during formatting or matched against the input string during parsing.

The following pattern letters are defined. All other characters from "A" to "Z" and from "a" to "z" are reserved:

Letter	Date or Time Component	Presentation	Examples
G	Era designator	Text	AD
y	Year	Year	1996; 96
M	Month in year	Month	July; Jul; 07
w	Week in year	Number	27
W	Week in month	Number	2
D	Day in year	Number	189
d	Day in month	Number	10
F	Day of week in month	Number	2
E	Day in week	Text	Tuesday; Tue
a	Am/pm marker	Text	PM
H	Hour in day (0-23)	Number	0
k	Hour in day (1-24)	Number	24
K	Hour in am/pm (0-11)	Number	0
h	Hour in am/pm (1-12)	Number	12
m	Minute in hour	Number	30
s	Second in minute	Number	55
S	Millisecond	Number	978
z	Time zone	General time zone	Pacific Standard Time; PST; GMT-08:00
Z	Time zone	RFC 822 time zone	-0800

Pattern letters are usually repeated, as their number determines the exact presentation.

The following list explains the items in the **Presentation** column in the table above:

Item	Description
Text	For formatting, when the number of pattern letters is 4 or more, the full form is used; otherwise an abbreviated form is used, when available. For parsing, both forms are accepted, independent of the number of pattern letters.
Number	For formatting, the number of pattern letters is the minimum number of digits, and shorter numbers are zero-padded to this amount. For parsing, the number of pattern letters is ignored unless it is needed to separate two adjacent fields.
Year	For formatting, when the number of pattern letters is 2, the year is truncated to 2 digits; otherwise it is interpreted as a *Number*.
Month	When the number of pattern letters is 3 or more, the month is interpreted as *Text*; otherwise, it is interpreted as a *Number*.
General time zone	Time zones are interpreted as *Text* when they have names. When the number of pattern letters is less than 4, the time zone abbreviation is displayed, for example PST. When the number of pattern letters is 4 or more, the full name is displayed, for example Pacific Standard Time.
RFC 822 time zone	The RFC 822 4-digit time zone format is used, for example -0800.

Examples

The following examples show how date and time patterns are interpreted in the U.S. The given date and time are 2001-07-04 12:08:56 local time, Pacific Standard Time zone.

Date and Time Pattern	Result
"yyyy.MM.dd G 'at' HH:mm:ss z"	2001.07.04 AD at 12:08:56 PDT
"EEE, MMM d, "yy"	Wed, Jul 4, '01
"h:mm a"	12:08 PM
"hh 'o"clock' a, zzzz"	12 o'clock PM, Pacific Daylight Time
"K:mm a, z"	0:08 PM, PDT
"yyyyy.MMMMM.dd GGG hh:mm aaa"	02001.July.04 AD 12:08 PM
"EEE, d MMM yyyy HH:mm:ss Z"	Wed, 4 Jul 2001 12:08:56 -0700
"yyMMddHHmmssZ"	010704120856-0700

Customizing Date and Time Formats

To customize date and time formats:

1. Stop the front-end server.
2. Open the `SccFrontendBootConf.xml` file with a text editor.

   This file is located in the `/conf/frontendserver` folder of the Silk Central directory on the front-end server.
3. Locate the `DateFormats` XML tag.

The XML tags <LongDateFormats> and <ShortDateFormats> show the date formats that are available by default. You can add or remove any formats you want to make available or unavailable to users.

4. Type time formats based on Java's SimpleDateFormat class.
5. Save and close the XML file.
6. Re-start the front-end server.

Host Name Display

When you are working with Web applications on multiple front-end servers, it can be useful to know which host you are working on. Silk Central offers a setting that displays the host name of the front-end server in the title bar of your Web browser.

Displaying or Hiding the Host Name in the Title Bar of Your Web Browser

To display or hide the host name in the title bar of your Web browser:

1. Stop the front-end server.
2. Open the SccFrontendBootConf.xml file with a text editor.

   This file is located in the /conf/frontendserver folder of the Silk Central directory on the front-end server.
3. Locate the DisplayHostNameInTitleBar XML tag in the Options section of the file.
4. If you set the value to true, which is the default value, the host name of the front-end server will be displayed in the title bar of Web browsers when accessing Silk Central. If you set the value to false, no host name will be displayed, and if you set the value to any other string, the specified string will be displayed.

   For example, when the XML tag is set to true, the browser displays: HURRICANE - Silk Central - Micro Focus - Administration: System - Microsoft Internet Explorer.

   When the tag is set to false, the browser displays: Silk Central - Micro Focus - Administration: System - Microsoft Internet Explorer.

   When the tag is set to MyHost, the browser displays: MyHost - Silk Central - Micro Focus - Administration: System - Microsoft Internet Explorer.
5. Save and close the XML file.
6. Re-start the front-end server.

Data Caching in Tests

Silk Central uses caching in **Tests** to improve the scalability of the front-end server and to reduce database load when multiple users work on the same project simultaneously. The **Tests** tree and test filters have significant impact on the front-end and database servers. Because information from the **Tests** tree and filters for specific projects can be shared among users, these areas are well suited to caching.

Tests Tree Caching

The **Tests** tree cache retains all tree information for projects that are currently in use in memory and regularly checks the database for changes to the tree. Administrators can influence the behavior of the cache by setting Cache/TestPlanTree/CheckForChangesInterval in the TMFrontendBootConf.xml configuration file. This is the maximum interval in seconds that tree information may remain outdated. Regardless of this setting, if a change occurs to a test, folder, or container on the same front-end server, the cache will be immediately updated with the change. The Cache/TestPlanTree/CheckForChangesInterval setting is only relevant when a change occurs on a different front-end server. When a project is not used by a user for more than an hour, the entire project tree cache is cleared and the project is reloaded the next time a user accesses it.

Test Filter Caching

With filter caching, the IDs of tests that match the criteria of specific filters are cached for a specified period of time, based on the minimum cache time setting and the execution time of each filter. Administrators can influence this behavior by setting two properties at `Cache/FilterCache/` in the `TMFrontendBootConf.xml` configuration file.

The first property, `MinimalLifeTime`, defines the minimum time in seconds before a filter result can be removed from the cache. The second property, `LifeTimeMultiplier`, makes this minimum setting dependent on the time it takes to execute the filter query. For example, if you define a multiplier of `> 0`, the maximum time that a result can remain in the cache is `MinimalLifeTime`, or the query execution time, multiplied by the `LifeTimeMultiplier`. So, if you have a filter query that takes 1 second to execute, and you use the default values, both `30`, for `MinimalLifeTime` and `LifeTimeMultiplier`, then the filter result will be cached for 30 seconds. If the filter query takes half a second to execute, then the filter result will still be cached for 30 seconds. If however the filter query takes 2 seconds to execute, then the filter result will be cached for 60 seconds.

JMX Measures for Caching

Silk Central offers JMX read measures to monitor underlying Java processes and other process-specific measures. JMX information for the **Tests** tree cache and the test filter cache can be found in the JMX measures tree at `borland.com/Frontend/TM`.

Note: Silk Performance Explorer and other tools can be used to track these and other measures.

JMX Measures for Caching in Tests

JMX read measures are available to monitor the underlying Java process and other process-specific measures in Silk Central. JMX information for the **Tests** tree cache and the filter cache can be found in the JMX measures tree at `borland.com/Frontend/TM`.

Tests Tree Cache Measures

Two primary measures are available for the **Tests** tree cache. `TestPlanTreeCache` only delivers a measure, *NumberOfCachedProjects*, on how many projects are currently cached. All details of the cache of the project are available from the second measure, *TestPlanTreeCache_0*. This measure is actually made out of the following measures:

Measure	Description
Hits	The number of times the cache was used, and database requests were not required.
LastUpdateCheckDurationInMillis	The duration in milliseconds the last update took, see *LastUpdateCheckTime*, to check for updates in the database.
LastUpdateCheckTime	The time when the last update check occurred.
LastUpdateDurationInMillis	The duration in milliseconds the last update took, see *LastUpdateTime*, to update the cache after a change occurred.

Measure	Description
LastUpdateTime	The time when the last update to the cache occurred due to a change in the **Tests** tree.
TreeInitializationTimeInMillis	The duration in milliseconds it took to load the whole project tree into the cache. This value will not change as long as the project cache is loaded.
TreeSize	The number of test nodes, which are test containers, test folders, and tests, in the project.
UpdateChecks	The number of checks for changes of the **Tests** tree for this project since the project tree cache was initialized.
Updates	The number of updates of the cached tree due to changes in the **Tests** tree.

Test Filter Cache Measures

The *TestPlanFilterCache* measure is comprised of the following three measures:

Measure	Description
Hits	The number of times the cache was used and no separate execution of the filter on the database was necessary.
Misses	The number of times the filter cache was not used, but the filter was executed against the database.
Size	The current number of cached filter results.

Configuring JMX Settings

Silk Central offers a set of default ports for the configuration of JMX settings.

Available Locations for Configuring JMX Settings

The communication on the default ports is by default unencrypted, meaning no SSL is running.

Setting	Description
Dcom.sun.management.jmxremote.ssl=false	The SSL is set to false by default.
Dcom.sun.management.jmxremote.authenticate=false	The authentication is set to false by default.

JMX settings can be configured in the following locations:

Location	Settings
Application Server	Registry Key: HKEY_LOCAL_MACHINE\SOFTWARE\Apache Software Foundation\Procrun 2.0\SCCAppServer\Parameters\Java Settings: ‘Options’. The default port for the application server is: Dcom.sun.management.jmxremote.port=19142.

Location	Settings
Front-End Server	Registry Key: HKEY_LOCAL_MACHINE\SOFTWARE\Apache Software Foundation\Procrun 2.0\SCCFrontendServer\Parameters\Java Settings: 'Options'. The default port for the front-end server is: Dcom.sun.management.jmxremote.port=19140.
Execution Server	Registry Key: HKEY_LOCAL_MACHINE\SOFTWARE\Apache Software Foundation\Procrun 2.0\SCCExecServer\Parameters\Java Settings: 'Options'. The default port for the execution server is: Dcom.sun.management.jmxremote.port=19144.
Chart Server	Registry Key: HKEY_LOCAL_MACHINE\SOFTWARE\Apache Software Foundation\Procrun 2.0\SCCChartServer\Parameters\Java Settings: 'Options'. The default port for the chart server is: Dcom.sun.management.jmxremote.port= 19146.

JMX Measures for Caching in Tests

JMX read measures are available to monitor the underlying Java process and other process-specific measures in Silk Central. JMX information for the **Tests** tree cache and the filter cache can be found in the JMX measures tree at `borland.com/Frontend/TM`.

Tests Tree Cache Measures

Two primary measures are available for the **Tests** tree cache. `TestPlanTreeCache` only delivers a measure, *NumberOfCachedProjects*, on how many projects are currently cached. All details of the cache of the project are available from the second measure, *TestPlanTreeCache_0*. This measure is actually made out of the following measures:

Measure	Description
Hits	The number of times the cache was used, and database requests were not required.
LastUpdateCheckDurationInMillis	The duration in milliseconds the last update took, see *LastUpdateCheckTime*, to check for updates in the database.
LastUpdateCheckTime	The time when the last update check occurred.
LastUpdateDurationInMillis	The duration in milliseconds the last update took, see *LastUpdateTime*, to update the cache after a change occurred.
LastUpdateTime	The time when the last update to the cache occurred due to a change in the **Tests** tree.
TreeInitializationTimeInMillis	The duration in milliseconds it took to load the whole project tree into the cache. This value will not change as long as the project cache is loaded.
TreeSize	The number of test nodes, which are test containers, test folders, and tests, in the project.

Measure	Description
UpdateChecks	The number of checks for changes of the **Tests** tree for this project since the project tree cache was initialized.
Updates	The number of updates of the cached tree due to changes in the **Tests** tree.

Test Filter Cache Measures

The *TestPlanFilterCache* measure is comprised of the following three measures:

Measure	Description
Hits	The number of times the cache was used and no separate execution of the filter on the database was necessary.
Misses	The number of times the filter cache was not used, but the filter was executed against the database.
Size	The current number of cached filter results.

JMX Measures for LQM Reporting Updater

Silk Central offers JMX read measures to monitor underlying Java processes and other process-specific measures. JMX information on the LQM Reporting Updater can be found on your application server in the JMX measures tree at `borland.com/LQMReporting/TM`.

Note: These measures only measure the common LQM Reporting updater, not an updater running on a database upgrade. Silk Performance Explorer and other tools can be used to track these and other measures.

Configuring the LQM Reporting Updater

Describes how to configure the interval and other settings of the thread that updates the LQM Reporting tables (LQM Reporting Updater). For detailed information about the LQM Reporting tables, refer to the *Database Model Schema*.

To configure the LQM Reporting Updater settings:

1. Stop the application server.
2. Open the `TMAppServerHomeConf.xml` file with a text editor.

   This file is located in the `/conf/appserver` folder of the Silk Central directory on the application server.
3. Locate the `LQMReporting` XML tag.

   You can modify the following settings:

   UpdateInterval — Defines the interval in seconds when the LQM Reporting tables are updated with the most current data.

   MSSqlUpdateBatchSize — Number of test tables processed at once. The batch size determines how much memory and processor resources are used on the application server for the update process. This setting only affects MS SQL Server databases.

OracleUpdateBatchsize	Same as *MSSqlUpdateBatchSize*, but for Oracle databases.
QueryTimeout	Specifies the time-out in seconds after which queries in the LQM Reporting update process are aborted. 0 or a negative value specifies that the queries never time out.
OracleCheckForUpdateStrategy	Determines how the update process reads from the source tables. Allowed values are `NOWAIT` and `WAIT`. • `NOWAIT`: When the update process wants to read from the source tables and another process is currently writing to these tables, the update process terminates and retries the next time it is called. • `WAIT`: The update process grabs a table lock and waits until other processes have finished accessing the tables, then reads from the source tables. The advantage is that the process always executes because it doesn't have to wait until a table is unlocked. The disadvantage is that all other processes that try to access a table after the LQM update process are blocked and have to wait until the process releases the table lock.

4. Save and close the XML file.
5. Restart the application server service.

Configuring the Report Update Interval

To configure the report updater interval:

1. Stop the chart server.
2. Open the `SccChartServerBootConf.xml` file with a text editor.

   This file is located in the `/conf/chartserver` folder of the Silk Central directory on the application server.
3. Locate the `Options` XML tag.
4. Change the value in `MaxCacheAge` to define the interval in seconds when the reports are updated with the most current data.
5. Save and close the XML file.
6. Restart the chart server service.

JMX Measures for Monitoring the LQM Reporting Updater

Silk Central offers JMX read measures to monitor underlying Java processes and other process-specific measures. JMX information on the LQM Reporting Updater can be found on your application server in the JMX measures tree at `borland.com/LQMReporting/TM`.

Note: The measures only measure the common LQM Reporting Updater, not an updater running on a database upgrade.

LQM Reporting Updater Measures

The following measures are available:

Measure	Description
LastDataLoadResetTime	Gives the time when the last reset of the LQM reporting tables was performed. If this attribute is null, then

Measure	Description
	no reset was performed during the lifetime of the process.
LastRunFromDate	Gives the start of the time span processed for the current update cycle.
LastRunToDate	Gives the end of the time span processed for the current update cycle.
LastUpdatesNeededCheckDurationInMillis	The duration (in milliseconds) of the last check for new or changed data.
LastTotalUpdateDurationInMillis	Total time used for the last update run.
LastUpdateFixedAttributesDurationInMillis	Duration of the last update of fixed attributes.
LastDeleteDurationInMillis	Time used to remove deleted nodes from the LQM Reporting tables.
LastDeleteTestsCnt	Number of tests deleted in the last run.
LastInsertLQMTestsDuration	Time used to insert new tests in the `LQM_Tests` table.
LastUpdatesNeededCheckOracleWaitForTableLocksDuration	Oracle requires special handling when checking for updated tests. It may be necessary to wait for other processes to finish their transactions on test tables. The time waited for these transactions is measured by this attribute.
LastInsertLQMTestUDAsDuration	Time used to insert new tests in the `LQM_TestUDAs` table.
LastSelectChangedDataQueryDurationInMillis	Time used for querying changed data.
LastUpdateTestsDurationInMillis	Duration of the last update of properties in the `LQM_Tests` table.

JMX Measures for DataMart Updater

Silk Central offers JMX read measures to monitor underlying Java processes and other process-specific measures. JMX information on the DataMart Updater can be found on your application server in the JMX measures tree at `borland.com/DataMart/TM`.

DataMart Updater Measures

The following measures are available:

Measure	Description
AverageCheckDurationInMilliseconds	Average time in milliseconds used to check for updated rows

Measure	Description
AverageUpdateDurationInMilliseconds	Average time in milliseconds used to update rows
FailedCheckCount	Number of failed checks for updates
FailedUpdateCount	Number of failed updates
FastestCheckInMilliseconds	Shortest time in milliseconds used to check for updated rows
FastestUpdateInMilliseconds	Shortest time in milliseconds used to update rows
Id	ID of DataMart Updater
IntervalInMilliseconds	Interval in milliseconds which defines how often the DataMart Updater runs
LastBlockedRunDate	Time when the execution was blocked the last time (wait for exclusive access failed)
LastFailedRunDate	Time when the execution failed the last time
LastSuccessfulRunDate	Time when the execution completed successfully the last time
LatestDataLoadInfo	Information about the latest data load
SlowestCheckInMilliseconds	Longest time in milliseconds used to check for updated rows
SlowestUpdateInMilliseconds	Longest time in milliseconds used to update rows
SlowestWaitForExclusiveAccessInMilliseconds	Longest time in milliseconds used to wait for exclusive access
StartupDate	Time when the DataMart Updater was initialized
SuccessfulCheckCount	Number of successful checks for updates
SuccessfulUpdateCount	Number of successful updates

Execution Server Host Name Resolution

An execution server may no longer be recognized by the application server if the execution server's IP address has changed. Re-starting the application server means the execution server should be recognized again.

Java uses a cache to store the host name resolution to guard against DNS spoofing attacks. In Silk Central the result of positive host name resolutions are cached forever, but this can be changed by editing the file `java.security` on the application server. This enables the application server to recognize execution servers even if their IP address has changed.

More information on this Java setting can be found at *http://java.sun.com/j2se/1.5.0/docs/guide/net/properties.html*.

Disabling The Caching of Host Name Resolutions

To specify that host name resolutions are never cached:

1. Stop the application server.
2. Open the `java.security` file with a text editor.

   This file is located in the `/lib/jre/lib/security` folder of the Silk Central directory on the application server.
3. Locate the line `#networkaddress.cache.ttl=-1` and change it to `networkaddress.cache.ttl=0`.

   Note: The "#" character needs to be removed to uncomment this line.

   Caution: This change should be discussed with your network administrator, as there may be security concerns in doing this.
4. Save and close the file.
5. Restart the application server service.

Configuring the Silk Central Location in Issue Manager

Describes how to configure the location of your Silk Central installation in Issue Manager. This enables the traceability from issues in Issue Manager to related tests in Silk Central. For additional information on using the traceability feature, refer to the Issue Manager documentation.

To configure the Silk Central location in Issue Manager:

1. Stop the front-end server.
2. Open the `SRFrontendBootConf.xml` file with a text editor.

   This file is located in the `/conf/frontendserver` folder of the Silk Central directory on the front-end server.
3. Locate the `Alm\ElementServiceEndpoint` and `Alm\LinkServiceEndpoint` XML tags.
4. Replace the default values `localhost:19120` with the host and port information of your Silk Central installation in both tags.

   If your Silk Central installation uses the same front-end server as your Issue Manager installation, and you use Tomcat Web server with the default port, then you can leave the default values.
5. Save and close the XML file.
6. Re-start the front-end server.

Disabling Unused Ports on Execution Servers

Depending on whether you use SSL or insecure communication between the application server and the execution servers, you may want to disable the respective unused port. You can also disable the default Tomcat port, which is never used by Silk Central.

The following procedure needs to be performed on each execution server where you want to disable the unused port.

To disable unused ports on the execution server:

1. Stop the execution server.
2. Open the `SccExecServerBootConf.xml` file with a text editor.

   This file is located in the `/conf/execserver` folder of the Silk Central directory on the execution server.
3. Locate the `InsecurePort` and `SSLPort` XML tags in the `RmiProxy` section of the file.
4. Depending on whether you use SSL or insecure communication between application server and execution server, proceed as follows:

SSL communication	Set the value of `InsecurePort` to `0`.

Insecure communication	Set the value of `SSLPort` to `0`.

5. Save and close the XML file.
6. Restart the execution server.

Disabling Unused Ports on Front-End Servers

To disable the unused Tomcat port:

1. Stop the front-end server.
2. Open the `server.xml` file with a text editor.

   This file is located in the `/conf/frontendserver/conf` folder of the Silk Central directory on the front-end server.
3. Change the port setting in the first line of the file from `<Server port="19132" shutdown="SHUTDOWN">` to `<Server port="0" shutdown="SHUTDOWN">`.
4. Save and close the XML file.
5. Re-start the front-end server.

Setting Maximum Number of MRU Reports

To set the maximum number of MRU reports that displays in the **Last Used Reports** list box:

1. Open the `SccFrontendBootconf.xml` file with a text editor.

   This file is located in the `/conf/frontendserver` folder of your Silk Central installation.
2. Locate the `<MRUListSize>` tag in the `<Report>` section of the file.

   The default value for this tag is `10`.
3. Set the value to the maximum number of reports that you want to have displayed in the **Last Used Reports** list box.
4. Save and close the XML file.

Memory Settings for Silk Central Servers

This section describes how you can change the memory settings of the Silk Central servers when out-of-memory errors occour.

The Java heap size of the Silk Central front-end and application servers is set by default to 512 MB (2048 MB for 64-bit front-end server). If you are experiencing out-of-memory errors, for example while copying a project in Silk Central, try to increase the heap size on the front-end or application server.

The following error is an indicator that the Java heap size is to small: `java.lang.RuntimeException: java.lang.OutOfMemoryError: Java heap space at com.segue.scc.webgui.module.console.ProjectsUnit $CopyProjectThread.run(ProjectsUnit.java:1473) Caused by: java.lang.OutOfMemoryError: Java heap space`. This error is reported in the logfile of the front-end server or the application server. Another indicator is the error message `The system is now working close to capacity. For security reasons no more users will be permitted to login`, which displays when you try to login to Silk Central.

Restriction: The following integrations are not supported when running the front-end server in 64-bit mode:

- IBM Rational ClearQuest
- IBM Rational RequisitePro

The following integrations have limitations when running the front-end server in 64-bit mode:

- Serena Version Manager (PVCS): The front-end server service needs to run as a user account, not as system account.
- UNC source control: Authentication is not possible.

Increasing the Java Heap Size on a Silk Central Server

Increase the Java heap size on a Silk Central server when you receive out-of-memory errors.

To increase the Java heap size on a front-end or application server:

1. Stop all Silk Central services.
2. Click **Start** > **Run**.
3. In the **Run** dialog box, type `regedit` into the **Open** text box.
4. Click **OK**. The **Registry Editor** opens.
5. In the menu tree, choose one of the following locations, depending on your operating system and the server type:

Operating System and Server	Location
32bit and front-end server	HKEY_LOCAL_MACHINE\SOFTWARE\Apache Software Foundation \Procrun 2.0\SCCFrontendServer\Parameters\Java
32bit and application server	HKEY_LOCAL_MACHINE\SOFTWARE\Apache Software Foundation \Procrun 2.0\SCCAppServer\Parameters\Java
32bit and chart server	HKEY_LOCAL_MACHINE\SOFTWARE\Apache Software Foundation \Procrun 2.0\SCCChartServer\Parameters\Java
64bit and front-end server (32-bit mode)	HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Apache Software Foundation\Procrun 2.0\SCCFrontendServer\Parameters \Java
64bit and front-end server (64-bit mode)	HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Apache Software Foundation\Procrun 2.0\SCCFrontendServer64\Parameters \Java
64bit and application server	HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Apache Software Foundation\Procrun 2.0\SCCAppServer\Parameters\Java
64bit and chart server	HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Apache Software Foundation\Procrun 2.0\SCCChartServer\Parameters\Java

6. Double-click **JvmMx**. The **Edit DWORD Value** dialog box opens.
7. In the **Base** section of the dialog box, click the **Decimal** option button.
8. In the **Value data** text box, type the new memory size, for example `2048`.

   Note: The value of the Java heap size cannot exceed the available physical RAM on the front-end server machine and enough memory should be left available for other necessary processes. If you enter a value that is too big, the server may not start anymore.
9. Click **OK**.
10. Restart all Silk Central services.

Setting the Maximum Size of Step Result Files

You can limit the size of the result files that testers can attach to test steps during the execution of manual tests in the **Manual Testing** window. For more information, see *Attaching Step Result Files*.

To set the maximum size of step result files:

1. In a file manager, browse to the Silk Central installation folder and locate the folder `/conf/frontendserver`.
2. Open the file `SccFrontendBootConf.xml` in a text editor.
3. Locate the tag `<MaximumResultFileSizeInBytes>`. The default value for this tag is `104857600`; that is 100 MB.
4. Set the value to the maximum file size you want to allow. Enter the file size in bytes.
5. Save and close the XML file.
6. Restart the front-end server.

Storing Percentile Marker Data for Silk Performer Results

Silk Performer results contain a high amount of percentile marker data that would consume a lot of space in the database (table `TM_PerfReportPercentileMarker`). Therefore, storing this information is disabled by default. To enable the storing of percentile marker data whenever Silk Performer results are stored, proceed as follows:

1. Stop the application server.
2. Open the `TMAppServerHomeConf.xml` file with a text editor.

   This file is located in the `/conf/appserver` folder of the Silk Central directory on the application server.
3. Locate the `Config/SilkPerformerResultStorage/StorePercentileMarkerData` XML tag. By default, the tag is set to false.
4. Set the value to `true`.
5. Save and close the XML file.
6. Restart the application server service.

System Administration

Use the **System Administration** area to configure the primary settings of Silk Central. These include:

- Creating, connecting, and disconnecting databases.
- Creating and managing clients.
- Configuring the infrastructure of the Silk Central installation (chart server, email server, and proxy connections).
- Maintaining system services by analyzing diagnostic information and system log files.

System Administrator

The System Administrator is the only user who can access the **System Administration** area and the System Administrator can access only this area. This user has no access to the actual Silk Central user interface.

Access the **System Administration** area by logging in with the following credentials:

- username: `sysadmin`
- password: `sysadmin`

Important: Change this default password as soon as possible. We recommend doing this after you have connected to a Silk Central database for the first time. To change the password, click **Change Your Password** in the menu of the **System Administration** area (on the top right). The username cannot be changed.

If no database is connected, the System Administrator will automatically be directed to the **System Administration** area.

Databases

The Silk Central products use databases to store, maintain, and analyze data. You must establish a connection to a database before you can work with Silk Central products.

You can establish multiple databases, but only one database at a time can be connected. To connect to a new database, you must first disconnect from the current one.

To configure database connections, go to the **Database** page in the **System Administration** area. Only the System Administrator can access this page. For more information see *System Administrator*.

Any administrative tasks that require the database to be disconnected should be performed during off-hours. Make sure to inform the users about the unavailability and its duration.

Creating Databases

If Silk Central is currently connected to a database, you must disconnect the database before you can create a new one.

Note: If you installed Silk Central using the evaluation setup package, a demo database with the name `demodb` is automatically created and connected. In this case, you do not have to process the following steps.

To create a new database:

1. If you have already set up your Silk Central application server, the **Database** page will display in a browser window, and you can proceed with step 3.

   Tip: Alternatively, you can browse to your Silk Central site with a Web browser. The default URL is `http://<computer name>:<port>/login`. When you use the *Standard Setup* option for installing Silk Central, the **Database** page displays immediately after you connect to the application. On the computer where the front-end server is installed, you can also select **Start** > **Programs** > **Silk** > **Silk Central** > **Silk Central 15.5** > **Silk Central Home Page** .
2. Log in to Silk Central as System Administrator.

   For more information see *System Administrator*.
3. In the menu, click **Databases**.
4. Configure the settings for the new database.

   For more information see *Database Page*.

   You can create a database on the locally installed Microsoft SQL Server 2008 Express SP1, a locally installed Microsoft SQL Server or Oracle installation, or on a network server that has MS SQL Server or Oracle installed. Silk Central supports:

   - Microsoft SQL Server 2008 R2 Service Pack 2
   - Microsoft SQL Server 2012 Service Pack 1
   - Oracle 10g (version 10.2.0.5)
   - Oracle 11g (version 11.2.0.4)
   - Oracle 12c (version 12.1.0.1.0)
5. Click **Connect Database** and click **Yes**. The **Create New Database** dialog box appears.
6. Type in the database administrator credentials and click **OK**.

   Tip: If you are creating a local or network Microsoft SQL Server or Oracle database, enter the login information provided to you by your database administrator.

   The **Create ALM Repository ID** dialog box appears.
7. Type in a unique **ALM repository ID** and click **OK**.
8. You will be notified that the repository has been created successfully. Click **OK**. The login page displays.

The database is created and connected. Now you can log in to Silk Central with your username and password.

Connecting to a Database

To connect to a database:

1. Browse to the Silk Central site with a web browser.
   The default URL is `http://<computer name>/login`.

   Note: If currently no database is connected, you are automatically directed to the **System Administration** area.
2. Log in to Silk Central as System Administrator.
   For more information see *System Administrator*.
3. In the menu, click **Databases**.
4. Click **Disconnect Database** to disconnect the current database. You are directed to the **Database** page.
5. Change the settings as required.
   For more information see *Database Page*.
6. Click **Connect Database**.

Establishing the database connection may take from several minutes up to some hours. When the connection is established, a dialog box appears. Click **OK**. The Silk Central login page displays.

Disconnecting from a Database

To disconnect from a database:

1. Browse to your Silk Central site with a Web browser.
   The default URL is `http://<computer name>/login`.
2. Log in to Silk Central as System Administrator.
   For more information see *System Administrator*.
3. In the menu, click **Databases**.
4. Click **Disconnect Database** to disconnect the current database. You are directed to the **Database** page.

ALM Repository IDs

Each Silk Central database must have a unique repository ID. This ID is used in ALM URIs to uniquely identify Silk Central requirements and tests across multiple Silk Central repositories. The repository ID must be unique within your company's Silk Central installations. The supplied repository ID will be part of the ALM URI. For additional information on ALM URIs, see *ALM URIs*. It is good practice to use a descriptive ID, for example `USCA01`, for USA, California, repository #01 or `GEBE02`, for Germany, Berlin, repository #02. Allowed characters are letters, numbers, period (.), and minus (-). IDs must have a length of 1 to 20 characters.

Caution: Once a repository ID has been set, it cannot be changed.

ALM URIs

Repository IDs are incorporated into Application Lifecycle Management Uniform Resource Identifiers (ALM URIs). ALM URIs offer a means of addressing elements across ALM Server platform and the ability to distinguish and track elements between applications. Among other things, ALM URIs are used to uniquely identify Silk Central requirements and tests across multiple Silk Central repositories.

The ALM element URI syntax is as follows:

```
<ALM URI> = alm://<source project>/<source element path>[?<source version>]
 <source project> = <source type>!<project identity>
```

For Silk Central, `<source type> = sctm`. For Issue Manager, `<source type> = scim`.

Project identity is built as follows:

```
<project identity> = <repository ID>_<project ID>
```

`<repository ID>` is a unique identifier for each Silk Central and Issue Manager repository. Each repository generates a unique identifier that is stored inside the repository. Uniqueness is guaranteed across all repositories that you may have installed. `<project ID>` is an identifier for a Silk Central or Issue Manager project. This identifier is unique in the context of each repository.

Source Element Path:

For Silk Central and Issue Manager, the following syntax for referencing artifacts is used:

Silk Central native requirements, which are requirements that are not linked with an external requirement management system, use the following syntax:

```
<source element path> = /<requirement ID>;ns=requirement
```

Silk Central tests use the following syntax:

```
<source element path> = /<test ID>;ns=test
```

Silk Central and Issue Manager issues use the following syntax:

```
<source element path> = /<issue ID>;ns=issue
```

Example ALM URI:

```
alm://sctm!USCA01_23/602;ns=test
```

Silk Central repository `USCA01`, project ID `23`, element ID `602`, element type `test`.

Database Page

On the **Database** page you can connect a database with Silk Central and disconnect the database again.

If no database is connected, you will automatically be directed to the **Database** page.

If a database is connected, you have to log in as System Administrator and click **Database** to access the **Database** page. For more information see *System Administrator*.

Configure the database connection with the following UI controls:

Item	Description
DBMS hostname or IP address	The name of the computer hosting the DBMS (database management system). Type in the name in the format `<computer name>\<instance name>`. **Database System** — **Hostname Description** **Microsoft SQL Server 2005 or Microsoft SQL Server 2008 R2 Service Pack 2 or Microsoft SQL Server 2012 Service Pack 1.** — `<computer name>\<instance name>`. For example: `localhost`. **Note:** An instance name only needs to be provided if the DBMS was installed using an instance.

Item	Description
	Database System / **Hostname Description** **Microsoft SQL Server 2008 Express SP1**: `<computer name>\<instance name>`. The default MS SQL Server Express instance is `localhost\SQLExpress`. **Oracle Server**: `<computer name>`. For example: `MyDBMSHost`. If you plan on creating custom reports with direct database access, define a **DBMS hostname** that is available throughout the network.
DBMS type	The type of DBMS you want to access, `MS SQL Server` or `Oracle`.
Port	The port on which the DBMS listens. The default port for Microsoft SQL Server, including Express, is `1433`. The default port for Oracle is `1521`.
Database / SID	MS SQL Server database name or Oracle SID provided by your Oracle administrator. *For Oracle database administrators:* Configure the Oracle SID to use the UTF-8 character set.
Username	Database user with sufficient credentials. The default Microsoft SQL Server user, including Microsoft SQL Express, is `sa`, if not changed by your database administrator. For Oracle Server, enter the database user provided by your Oracle administrator. **Important:** For Oracle Servers, the database username must not contain periods (.).
Password	Valid password for the specified **Username**. **Database System** / **Password** **Microsoft SQL Server, including Express**: These databases enforce password usage. Ask your database administrator for the correct login credentials if you are not sure. **Oracle Server**: Password for the database user. Ask your Oracle administrator for the correct login credentials if you are not sure.
Read-only username	An optional database user with read-only rights on all tables and views in the specified database. This user is used for actions where only read rights are required, for example executing reports. This will ensure that running

Item	Description
	reports with advanced queries will not change any data in the database, as executing advanced queries could have a detrimental effect on the data. Accessing the database with a read-only user also has a positive impact on performance. If your DBMS is Microsoft SQL Server, Silk Central automatically creates this user if you specify a name and password. If your DBMS is Oracle, your database administrator needs to create the user in Oracle and your Silk Central administrator needs to add that user to Silk Central.
Read-only password	Valid password for the specified **Read-only Username**.
DBMS version info	Displays DBMS and operating system version information.
ALM repository ID	Displays the ALM URI of the repository.
Connect Database / **Disconnect Database**	Click this button to connect to or disconnect from a DBMS.

Note: When you connect to the database and the version of an execution server is an invalid older version, but later than or equal to version SilkCentral Test Manager 2009 SP1, the execution server is automatically upgraded to the current Silk Central version. Silk Central shows a message concerning the upgrade in the **Information** column in the list of execution servers. As long as the upgrade procedure is not complete, the upgrading execution servers are not used.

Clients

The **System Administration** area allows you to generate clients. Clients are distinct units within Silk Central. This means that you need to maintain only one Silk Central installation and you can create one or more clients for it. Clients enhance security and facilitate structuring your projects. From the total pool of available licenses, you can specify the maximum limit of licenses that can be used per client. You can only access the data of a client if you are logged in to that client. Within a client, all assets are then accessible across the projects.

A client can be a *customer* or a *division* within a company. You can configure various client settings which will affect the projects that are assigned to that client. When you install Silk Central, a default client is created automatically. When you upgrade Silk Central from an older version, all existing projects and users are assigned to this default client.

A Super User is created for each client. For more information, see *Super User* . You can delete all clients, but you need at least one client to be able to create projects and users and to work with Silk Central.

Super User

The Super User has all permissions within a client. By contrast, the System Administrator can just manage the various clients of a Silk Central installation but has no access to the actual Silk Central UI.

When the System Administrator creates a new client, a Super User is automatically created for that client.

Log in as Super User with the following credentials:

- username: `admin`
- password: `admin`

Important: Change this default password as soon as possible. To change the password, click **Administration** > **User Management** in the menu, click the **Accounts** tab, and click **admin** in the grid. The username cannot be changed.

For a list of all available user roles and permissions, see *User Roles and Permissions*.

Creating Clients

To create a client:

1. Log in to Silk Central as System Administrator.
   For more information see *System Administrator*.
2. In the menu, click **Clients**.
3. Click **New Client**. The **New Client** dialog box appears.
4. Enter the **Client Name** and a **Description**.
5. In the **License Limits** section, specify the maximum amount of licenses that can be in use concurrently for this client. Once the specified amount of licenses is in use, no more users will be able to acquire a license on the selected client. This is especially useful if you want to ensure that a more important client has enough available licenses, while less important clients can be restricted.
   The following rules apply:
   - No value: No license limit is applied, the client can make use of the total amount of available licenses.
   - `0` (zero): No licenses can be consumed by the client, which essentially deactivates all related features of the selected license.
   - Any number: The amount of licenses that can be consumed by the client. If the number is higher than the total amount of available licenses, the client can make use of the total amount of available licenses.

   Tip: The total amount of available licenses is displayed at the bottom of the **Clients** page.
6. Click **OK**.

Log in to the client as Super User to perform client-specific administration tasks. For more information, see *Super User*.

Editing Clients

To edit the settings of a client:

1. Log in to Silk Central as System Administrator.
   For more information see *System Administrator*.
2. In the menu, click **Clients**.
3. Click (**Edit**) in the **Actions** column. The **Edit Client** dialog box appears.
4. Edit the **Client Name** and the **Description**.
5. In the **License Limits** section, specify the maximum amount of licenses that can be in use concurrently for this client. Once the specified amount of licenses is in use, no more users will be able to acquire a license on the selected client. This is especially useful if you want to ensure that a more important client has enough available licenses, while less important clients can be restricted.
   The following rules apply:
   - No value: No license limit is applied, the client can make use of the total amount of available licenses.
   - `0` (zero): No licenses can be consumed by the client, which essentially deactivates all related features of the selected license.

- Any number: The amount of licenses that can be consumed by the client. If the number is higher than the total amount of available licenses, the client can make use of the total amount of available licenses.

Tip: The total amount of available licenses is displayed at the bottom of the **Clients** page.

6. Click **OK**.

Note: Notify the Silk Central users if you change the **Client name**. Silk Central users need to enter the correct client name on the login page.

Log in to the client as Super User to perform client-specific administration tasks. For more information, see *Super User*.

Removing Clients

To remove a client:

1. Log in to Silk Central as System Administrator.
   For more information see *System Administrator*.
2. In the menu, click **Clients**.
3. Click (**Delete**) in the **Actions** column.
4. Click **Yes** to confirm.

Default Client

When you install Silk Central, a client (with the name `Default`) is created automatically and the status of this client is set to default. To define which client has the default status, log in to Silk Central as System Administrator and click **Clients**. For more information, see *System Administrator*.

To set a client as default, click **Set as Default**. To unset the default status, click **Unset Default**. The icon shows, which client is currently the default client. It is also possible that there is no default client defined, but only one client at a time can have the default status.

The purpose of the default client is to simplify the login: When you login to Silk Central with a user of the default client, you can omit the client name. Just enter your username. This is especially useful for Silk Central installations with only one client. When you upgrade Silk Central from an older version, the login behaviour is the same as it was before.

License Handling

Silk Central provides different types of licenses. These licenses are checked out from the license server as soon as a user enters a certain area of Silk Central:

License Type	Area
Test Manager	This license is checked out when you access a test management area for the first time after your login. Silk Central test management areas are: **Requirements**, **Tests**, **Execution Planning**, **Tracking**, **Issues** (excluding the Issue Manager area), and **Reports**.
Manual Testing	This license is checked out when you open the **Manual Testing** window. A **Manual Testing** license is checked out when a test is downloaded for offline execution. The license is checked back in when results are uploaded.
Issue Tracking	This license is checked out when you access Issue Manager.

License Type	Area
Automated Testing	This license is checked out when an automated test starts running, thus limiting the number of automated tests that can be run concurrently. If no automated testing licenses are available, the automated tests are pending in a queue. The license is checked back in when an automated test run has finished.

Note the following:

- When you click **Log out** (**User** > **Log out**), the licenses are checked in to the license server again, except checked out automated testing licenses and manual testing licenses for offline testing.
- If you do not log out (and just close the browser window), the license will only be checked in when the session expires.

The **About** page (**Help** > **About**) displays how many licenses are currently used and how many licenses are available for the client you are currently logged in to.

Clients Page

To access this page, log in to Silk Central as System Administrator and click **Clients**. For more information see *System Administrator*.

Use this page to create and manage your clients. Click **New Client** to create a new client. Click **Set as Default** or **Unset Default** to change the default status of the client. The icon shows, which client is currently the default client.

The grid on the page contains the following columns:

Column	Description
Actions	Click the buttons and to **Delete** or **Edit** clients.
ID	The Identifier of the client.
Name	The name of the client. Click to **Edit** the name. Notify the Silk Central users if you change the client name. Silk Central users need to enter the correct client name on the login page.
Description	Describes the client in more detail. Click to **Edit** the description.
Test Manager	The maximum amount of **Test Manager** licenses that can be in use concurrently.
Manual Testing	The maximum amount of **Manual Testing** licenses that can be in use concurrently.
Issue Tracking	The maximum amount of **Issue Tracking** licenses that can be in use concurrently.
Automated Testing	The maximum amount of **Automated Testing** licenses that can be in use concurrently.
Created On	Date when the client was created.
Created By	The user who created the client.
Changed On	Date when the client was modified.
Changed By	The user who modified the client.

Client Permissions

Use this page to modify system settings and permissions for clients.

Item	Description
Show front-end server and application server log views for client users.	When checked, shows the front-end server and application server log tabs in the UI (logs may contain client specific data).
Allow advanced reports for client users.	When checked, enables reports with advanced queries. If not checked, you can still execute them but you cannot create new ones or edit.
Allow report template management for client users.	When checked, enables uploading, editing, updating, and deleting report templates. Report templates may contain arbitrary SQL and read data of other clients.

Infrastructure

Contains settings for chart servers, email servers, and the system proxy.

Chart Servers

A chart server is a service that computes data and produces graphs. These graphs are displayed within the Silk Central application. The service can be installed with the Silk Central setup on a computer of your choice. You must configure a chart server connection to display graphs.

Note: You can configure as many chart server connections as you want. Silk Central automatically implements a load balancing mechanism for chart generation.

Configuring Chart Server Connections

To configure a chart server connection:

1. In the menu, click **Infrastructure** > **Chart Servers**
2. If a chart server was installed with the application server on the same computer, a chart server connection to `localhost` is configured automatically.
3. *Optional:* If your chart servers should communicate with the front-end server through a different URL than the one that users use to access the Web user interface, click **Configure Web Service URL** and type this URL into the text field. This is required for example when users access the Web user interface through a proxy, while your chart servers need the internal URL or IP address of the front-end server.
4. Click **New Chart Server**. The **New Chart Server** dialog box appears.
5. Enter the **Hostname or IP address**, the **Port**, and the **URL** where the chart service is installed. The default port is `19126`, the default URL is `ChartServer`.
6. Click **Check** to establish a test connection to the chart server. The **Chart Server Check** dialog box appears.

   Note: If the test is successful, a test image appears. If the test fails, an error message appears. Check the entered data and verify that a chart server is installed on the target machine.
7. Click **Close**. If the test connection was successful, check the **Active** check box and click **OK**.

You can configure as many chart server connections as you want. Silk Central automatically implements a load balancing mechanism for chart generation.

Note: You can only configure a chart server connection if the *chart server service* is installed on the target computer. For more information, see the installation instructions of your Silk Central application.

Editing Chart Server Connections

To edit a chart server connection:

1. In the menu, click **Infrastructure** > **Chart Servers**
2. *Optional:* If your chart servers should communicate with the front-end server through a different URL than the one that users use to access the Web user interface, click **Configure Web Service URL** and type this URL into the text field. This is required for example when users access the Web user interface through a proxy, while your chart servers need the internal URL or IP address of the front-end server.
3. Click (**Edit**) in the **Actions** column. The **Edit Chart Server** dialog box displays.
4. Edit the **Hostname or IP address**, the **Port**, or the **URL** where the chart service was installed. The default port is `19126`, the default URL is `ChartServer`.
5. Check/uncheck the **Active** check box to activate/deactivate the server.
6. Click **Check** to establish a test connection to the chart server. The **Chart Server Check** dialog box appears.

   Note: If the test is successful, a test image appears. If the test fails, an error message appears. Check the entered data and verify that a chart server is installed on the target machine.
7. Click **Close** and click **OK**.

Removing Chart Server Connections

To remove a chart server connection:

1. In the menu, click **Infrastructure** > **Chart Servers**
2. Click (**Edit**) in the **Actions** column. The **Edit Chart Server** dialog box displays.
3. Uncheck the **Active** check box and click **OK**.
4. Click (**Delete**) in the **Actions** column.
5. Click **Yes** to confirm.

Note: This removes the connection to the server. It does not remove the server itself.

Chart Servers Page

To access this page, log in to Silk Central as System Administrator and click **Infrastructure** > **Chart Servers**. For more information see *System Administrator*.

Use this page to manage the connections to your chart servers. Click **New Chart Server** to configure a new chart server connection. **Configure Web Service URL** allows you to configure an alternate URL with which your chart servers connect to the front-end server. The grid on the page contains the following columns:

Column	Description
Actions	Click the buttons and to **Delete** or **Edit** chart server connections. You must deactivate a connection before you can delete it.
Chart Server URL	Shows the URL of the chart server. Syntax: `http://<computer name or IP address>:<port>/ChartServer`. The default port is `19126`. Click to **Edit** the URL.
Status	Shows if the connection to the chart server is active or inactive. Click (**Edit**) to change the status of a connection.
Created On	Date when the chart server connection was created.
Created By	The user who created the chart server connection.
Changed On	Date when the chart server connection was modified.

Column	Description
Changed By	The user who modified the chart server connection.

Email Server

When you configure an email server, Silk Central can notify you about results from your application.

Configuring Email Servers

To configure up to three email servers:

1. Log in to Silk Central as System Administrator.
   For more information see *System Administrator*.
2. Click **Infrastructure** > **Email Server**.
3. Enter an email address in the field **Email address of system administrator**.
   Silk Central will send the notifications to this address.
4. Enter an email address in the field **'From' address to use for emails**.
   This address will display as sender in the notifications.
5. Enter the host name or the IP address of your email servers in the **Server** fields.
   You can configure up to three email servers.
6. If the servers require credentials, enter them in the **Username** and **Password** fields.
7. Click **Check** to test the connection to the servers. Silk Central sends a test email to the email address you entered in step three.
8. If an error message displays, or if you do not receive an email, review your email settings. Ensure that the host name of your email server is correct and that the SMTP protocol is running on that computer.

   Note: SMTP with TLS is currently not supported.
9. If you receive the test email, the test was successful. Click **Save**.

Email Server Page

To access this page, log in to Silk Central as System Administrator and click **Infrastructure** > **Email Server**. For more information see *System Administrator*.

Use this page to configure up to three email servers. The page displays the following items:

Item	Description
Email address of system administrator	Specifies the email address of the Silk Central System Administrator.
'From' address to use for emails	Specifies the name that is to appear in the **From** field when someone receives an email from the system. This can be any email address, for example `System_message@mycompany.com`.
Server 1 **Server 2** **Server 3**	Specify the host names or IP addresses of the servers that send your email. For many companies, this server is simply called `mail`. If your email server uses SMTP authentication (LOGIN PLAIN), you must enter a valid user and password for the email server. Contact your mail server administrator if you do not know the login credentials.

Item	Description
Check	Sends a test email to the recipient defined in the field **Email address of system administrator**.
Save	Saves your settings.
Reset	Clears all values in the fields.

System Proxy

Execution servers of a certain location can communicate with the application server through a proxy. Once you (as System Administrator) have configured a proxy server, the clients can enable the proxy. To do so, the clients have to click **Administration** > **Execution Servers** in the menu, click (**Edit**) in the **Actions** column and check the **Use system proxy** check box.

Configuring a System Proxy

To configure a system proxy:

1. Log in to Silk Central as System Administrator.
   For more information see *System Administrator*.
2. Click **Infrastructure** > **System Proxy**.
3. Enter the **Host** and the **Port** of the proxy server.
4. Enter the **Username** and the **Password** if required.
5. Click **Check** to test the connection to the proxy server. A dialog box shows you the result of the test.
6. If the connection could not be established, make sure your settings are correct.
7. If the connection could be established, click **Save**. The system proxy is ready for use.

System Proxy Page

To access this page, log in to Silk Central as System Administrator and click **Infrastructure** > **System Proxy**. For more information, see *System Administrator*.

Use this page to configure a system proxy. The page displays the following items:

Item	Description
Host	The host name or IP address of the computer that is intended to serve as system proxy.
Port	The port number on which the system proxy listens. The default port is `8080`.
Username (optional)	Enter a valid user name if the proxy server requires login credentials.
Password (optional)	Enter a valid password for the user name.
Check	Tests the connection to the proxy with the credentials you provided.
Save	Saves your settings.
Reset	Clears all items on this page.

System Diagnostics

Use the **System Diagnostics** tab to retrieve diagnostic information and to retrieve system log files.

System Diagnostics

The **System Diagnostics** page provides a way to retrieve the following system information:

- Product version.
- Version and type of database.
- Used integrations.
- System environment information and system properties.
- JDBC information.
- Database statistics: number of projects, test types, indices, triggers, constraints.
- Application server and front-end server logs.

The page can be zipped and downloaded to the local file-system by clicking the **Download** button. You can select the server logs that should be downloaded by selecting them via the check boxes.

1. Login as System Administrator.
2. Click **System Diagnostics** > **System Diagnostics**.
3. Click **Open System Diagnostics**.
4. Select the Silk Central server logs that should be downloaded by selecting them via the check-boxes.
5. Click **Download** to zip and download the data to the local file-system.

Front-End Server Logs

To access this page, log in as System Administrator and click **System Diagnostics** > **Front-end Server Logs**. For more information see System Administrator.

Use this page to view logging information from the Silk Central front-end server service.

For each log file, the page displays the following columns:

Column	Description
Actions	Click the buttons and to **Delete** or **Download** log files.
Name	The name of the log file.
Size	The physical size of the log file.
Date	Date when the log file was last physically saved.

Application Server Logs

To access this page, log in as System Administrator and click **System Diagnostics** > **Application Server Logs**. For more information see System Administrator.

Use this page to view logging information from the Silk Central application server service.

For each log file, the page displays the following columns:

Column	Description
Actions	Click the buttons and to **Delete** or **Download** log files.
Name	The name of the log file.
Size	The physical size of the log file.
Date	Date when the log file was last physically saved.

Integrations

Silk Central integrates with many different tools for many different purposes.

Code Analysis Tools Integration

DevPartner Code Coverage Integration

Silk Central integrates with the **Code Analysis** component of DevPartner Studio. You can perform code analysis on .NET applications using this integration.

For more information, see the sections on code analysis for .NET.

Issue Tracking Profile Integrations

Atlassian JIRA

This section describes how to configure Atlassian JIRA (JIRA) issue tracking profiles to integrate with Silk Central.

The JIRA plug-in relies on the Silk Central Java API for integration.

Note: See the sources of the package `com.borland.sctm.issuetracking.jira` to see how these elements fit together.

For a list of the JIRA versions that are supported for integration with Silk Central, refer to the *Silk Central Release Notes*.

If you assign an external JIRA issue to a test, you can enter the issue ID either with or without the project key. For example: `PROJECT-13` or just `13`.

Adding Atlassian JIRA Issue Tracking Profiles

Before you integrate Silk Central with JIRA, ensure that the SOAP services are enabled. For detailed information, refer to the JIRA documentation.

To add a JIRA issue tracking profile:

1. In the menu, click **Issues** > **Issue Tracking Integrations**. The **Issue Tracking** page displays, listing all issue tracking profiles that have been created for the system.
2. Click **New Profile** to open the **New Issue Tracking Profile** dialog box.
3. Type a **Name** for the new profile.
   This is the name that is displayed in lists where the profiles are available for selection.
4. Type a **Description** for the new profile.
5. Select **Atlassian JIRA** from the **Type** list.
6. Type a valid **Username** and **Password**.
   These credentials will be used to access the issue tracking system.
7. In the **URL** field, type the host name of your JIRA server and the port that is used to connect to the server.
8. Click **Load Project** to load all projects from the server and populate the **Project** list box, then select a project from the **Project** list box.
9. Optional: Select **true** from the **Show custom fields** list to display custom JIRA fields in the issue dialog. If true is selected, the JIRA user defined for the issue tracking profile has to have JIRA administration permissions.

10. Optional: If you experience performance issues on large JIRA installations, select **false** from the **Update daily issue statistics** list. The daily issue statistics will not be updated.

    Note: If you use JIRA 5 or a later JIRA version, this setting is ignored, since the performance issues are resolved for the newer versions.

11. Click **OK**.

    Silk Central attempts a trial connection to the external system using the information you have provided.

    Note: If an error occurs, please review the information that you have supplied, or consult your administrator.

12. If the trial connection is successful, a confirmation dialog box displays, asking you if you want to map internal issue states to the states of the newly defined profile.

    - Click **Yes** to proceed with the related *Mapping Issue States* procedure.
    - Click **No** to map issue states later.

Editing Atlassian JIRA Issue Tracking Profiles

When the server or login credentials of your issue tracking system change, you must edit your issue tracking profile accordingly.

To edit an existing Atlassian JIRA issue tracking profile:

1. In the menu, click **Issues** > **Issue Tracking Integrations**. The **Issue Tracking** page displays, listing all issue tracking profiles that have been created for the system.
2. Click on the name of the issue tracking profile that you want to modify. The **Edit Issue Tracking Profile** dialog box opens.
3. Edit the **Name** of the profile.

   This is the name that is displayed in lists where profiles are available for selection.
4. Edit the **Description** of the profile.
5. *Optional:* Select a new **Type** for the issue tracking profile from the list box.
6. Edit the **Username** and **Password**.

   These credentials are used to access your issue tracking system.
7. In the **URL** field, edit the hostname of your JIRA server and the port that is used to connect to the server.
8. To change the JIRA project, click **Load Project** to load all projects from the server and update the **Project** list box, then select a project from the **Project** list box.
9. Optional: Select **true** from the **Show custom fields** list to display custom JIRA fields in the issue dialog. If true is selected, the JIRA user defined for the issue tracking profile has to have JIRA administration permissions.
10. Optional: If you experience performance issues on large JIRA installations, select **false** from the **Update daily issue statistics** list. The daily issue statistics will not be updated.

    Note: If you use JIRA 5 or a later JIRA version, this setting is ignored, since the performance issues are resolved for the newer versions.

11. Click **OK**.

    Silk Central attempts a trial connection to the external system using the information you have provided.

    Note: If an error occurs, please review the information that you have supplied, or consult your administrator.

12. If the trial connection is successful, a confirmation dialog box displays, asking you if you want to map internal issue states to the states of the newly defined profile.

    - Click **Yes** to proceed with the related *Mapping Issue States* procedure.
    - Click **No** to map issue states later.

Bugzilla

This section describes how to configure Bugzilla issue tracking profiles to integrate with Silk Central.

The Bugzilla plug-in relies on the Silk Central Java API for integration. Silk Central communicates with Bugzilla through the XML-RPC Bugzilla Web-service introduced with Bugzilla 3.0 by using the Redstone XML-RPC library. To enable Bugzilla integration, ensure that you have installed a SOAP::Lite package for the web server. For example, for the Debian distribution install the `libsoap-lite-perl` package.

For a list of the Bugzilla versions that are supported for integration with Silk Central, refer to the *Silk Central Release Notes*.

Adding Bugzilla Issue Tracking Profiles

To add a Bugzilla issue tracking profile:

1. In the menu, click **Issues** > **Issue Tracking Integrations**. The **Issue Tracking** page displays, listing all issue tracking profiles that have been created for the system.
2. Click **New Profile** to open the **New Issue Tracking Profile** dialog box.
3. Type a **Name** for the new profile.

   This is the name that is displayed in lists where the profiles are available for selection.
4. Type a **Description** for the new profile.
5. Select **Bugzilla** from the **Type** list box.
6. Type a valid **Username** and **Password**.

   These credentials will be used to access the issue tracking system.
7. Enter the URL of your Bugzilla installation. For example, `http://bugzillaserver/bugzilla`.
8. Click **OK**.

   Silk Central attempts a trial connection to the external system using the information you have provided.

   Note: If an error occurs, please review the information that you have supplied, or consult your administrator.
9. If the trial connection is successful, a confirmation dialog box displays, asking you if you want to map internal issue states to the states of the newly defined profile.

   - Click **Yes** to proceed with the related *Mapping Issue States* procedure.
   - Click **No** to map issue states later.

Editing Bugzilla Issue Tracking Profiles

When the server or login credentials of your issue tracking system change, you must edit your issue tracking profile accordingly.

To edit an existing Bugzilla issue tracking profile:

1. In the menu, click **Issues** > **Issue Tracking Integrations**. The **Issue Tracking** page displays, listing all issue tracking profiles that have been created for the system.
2. Click on the name of the issue tracking profile that you want to modify. The **Edit Issue Tracking Profile** dialog box opens.
3. Edit the **Name** of the profile.

   This is the name that is displayed in lists where profiles are available for selection.
4. Edit the **Description** of the profile.
5. *Optional:* Select a new **Type** for the issue tracking profile from the list box.
6. Edit the **Username** and **Password**.

   These credentials are used to access your issue tracking system.

7. Edit the **URL** of your Bugzilla installation.
8. Click **OK**.

   Silk Central attempts a trial connection to the external system using the information you have provided.

   Note: If an error occurs, please review the information that you have supplied, or consult your administrator.
9. If the trial connection is successful, a confirmation dialog box displays, asking you if you want to map internal issue states to the states of the newly defined profile.
   - Click **Yes** to proceed with the related *Mapping Issue States* procedure.
   - Click **No** to map issue states later.

Changepoint

This section describes how to configure Changepoint issue tracking profiles.

Changepoint is an IT management and governance tool that enables organizations to maximize the business value of the entire IT portfolio including projects, applications, and infrastructure.

This integration allows you to connect Silk Central to Changepoint to store issues.

Important: The Changepoint environment must have the Changepoint API installed and the `CPWebService` configured.

Known Issues

Workflow Do not change the Changepoint workflows for requests after submitting them in Silk Central. Do not use different workflows in requests when assigning external issues. The filter criteria used in workflows should be based on fields used in the Silk Central **Issue Tracking Profile**. Otherwise, unexpected states may be assigned to requests in Silk Central.

Adding Changepoint Issue Tracking Profiles

To add a Changepoint issue tracking profile:

1. In the menu, click **Issues** > **Issue Tracking Integrations**. The **Issue Tracking** page displays, listing all issue tracking profiles that have been created for the system.
2. Click **New Profile** to open the **New Issue Tracking Profile** dialog box.
3. Type a **Name** for the new profile.

   This is the name that is displayed in lists where the profiles are available for selection.
4. Type a **Description** for the new profile.
5. Select **Compuware Changepoint** from the **Type** list box.
6. Type a valid **Username** and **Password** for the issue tracking system.

   Note: In order to select a project and to submit a new issue, the **Username** field must contain a Changepoint user who has the project's `Edit Project Plan` permission.
7. Enter the URL of your Changepoint installation in the **Changepoint Server URL** field.
8. Enter the URL of your Changepoint web service server in the **Changepoint WebService URL** field.
9. Click **Load Initiator** to load your Changepoint initiators.
10. Select an initiator from the **Initiator** list box.
11. Click **Load Client** to load your Changepoint clients.
12. Select a client from the **Client** list box.
13. Click **Load Initiative** to load your Changepoint initiatives.
14. Select an initiative from the **Initiative** list box.

15. Click **Load Project** to load your Changepoint projects.
16. Select a project from the **Project** list box.
17. Click **Load Request Type** to load your Changepoint request types.
18. Select a request type from the **Request Type** list box.
19. Click **Load Application** to load your Changepoint applications. Select an application from the **Application** list box.
20. Click **OK**.

    Silk Central attempts a trial connection to the external system using the information you have provided.

    Note: If an error occurs, please review the information that you have supplied, or consult your administrator.
21. If the trial connection is successful, a confirmation dialog box displays, asking you if you want to map internal issue states to the states of the newly defined profile.
    - Click **Yes** to proceed with the related *Mapping Issue States* procedure.
    - Click **No** to map issue states later.

Opening Changepoint Issues in Context

To open Silk Central issues in the context of the Changepoint system, you need to place a specific file in the virtual directory on the Changepoint server. To do so, follow the steps below:

1. In the menu, click **Help** > **Tools** to view the **Downloadable Client Tools** page.
2. Click the `Changepoint Request Form` link.
3. When prompted, choose to save the `ChangepointRequestForm.zip` file to disk.
4. Extract `CPRequestForm.html` from `ChangepointRequestForm.zip`.

   If you are using Changepoint 2010, the required file is in the `Changepoint 2010` folder. It is called `CPRequestForm2010.html`. Extract this file and manually rename it to `CPRequestForm.html`.
5. Manually copy `CPRequestForm.html` to the Changepoint server and placed into the virtual directory in which Changepoint is running.

Synchronizing the Time for the Changepoint and Silk Central Servers

This section describes how to ensure that the Changepoint server and Silk Central server communicate properly.

1. Open the `web.config` file located in the `../Changepoint/CP Web Services` directory.
2. Add the following key to the `security` section:

   ```
   <timeToleranceInSeconds>86400</timeToleranceInSeconds>
   ```
3. Save the file.

IBM Rational ClearQuest

This section describes how to configure IBM Rational ClearQuest issue tracking profiles to integrate with Silk Central.

IBM Rational ClearQuest products provide flexible defect/change tracking and automated workflow support. The two key products are IBM Rational ClearQuest (ClearQuest) and IBM Rational ClearQuest MultiSite (ClearQuest Multisite). To work with ClearQuest profiles, you must have the ClearQuest client software installed on the computer where the Silk Central front-end server is running. For detailed information about installing ClearQuest, refer to the ClearQuest documentation.

For a list of the ClearQuest versions that are supported for integration with Silk Central, refer to the *Silk Central Release Notes*.

Adding ClearQuest Issue Tracking Profiles

To add a ClearQuest issue tracking profile:

1. In the menu, click **Issues** > **Issue Tracking Integrations**. The **Issue Tracking** page displays, listing all issue tracking profiles that have been created for the system.
2. Click **New Profile** to open the **New Issue Tracking Profile** dialog box.
3. Type a **Name** for the new profile.

   This is the name that is displayed in lists where the profiles are available for selection.
4. Type a **Description** for the new profile.
5. Select **IBM Rational ClearQuest** from the **Type** list box.
6. Type a valid **Username** and **Password**.

   These credentials will be used to access the issue tracking system.
7. Enter the **Repository Info** of your ClearQuest installation.

   This is the database name that is defined in the ClearQuest client software. The name of the sample database is `SAMPL`.

   Note: It is not possible to use more than one ClearQuest schema repository. Silk Central will connect to the default ClearQuest repository.
8. Specify the **Record Type**, which is the issue type of ClearQuest.

   When entering an issue in Silk Central, ClearQuest will save the issue with the issue type you define in this text box. The default issue type is `Defect`.
9. Click **OK**.

   Silk Central attempts a trial connection to the external system using the information you have provided.

   Note: If an error occurs, please review the information that you have supplied, or consult your administrator.
10. If the trial connection is successful, a confirmation dialog box displays, asking you if you want to map internal issue states to the states of the newly defined profile.

    - Click **Yes** to proceed with the related *Mapping Issue States* procedure.
    - Click **No** to map issue states later.

Editing ClearQuest Issue Tracking Profiles

When the server or login credentials of your issue tracking system change, you must edit your issue tracking profile accordingly.

To edit an existing ClearQuest issue tracking profile:

1. In the menu, click **Issues** > **Issue Tracking Integrations**. The **Issue Tracking** page displays, listing all issue tracking profiles that have been created for the system.
2. Click on the name of the issue tracking profile that you want to modify. The **Edit Issue Tracking Profile** dialog box opens.
3. Edit the **Name** of the profile.

   This is the name that is displayed in lists where profiles are available for selection.
4. Edit the **Description** of the profile.
5. *Optional:* Select a new **Type** for the issue tracking profile from the list box.
6. Edit the **Username** and **Password**.

   These credentials are used to access your issue tracking system.
7. Edit the **Repository Info** of your ClearQuest installation.

   This is the database name that is defined in the ClearQuest client software. The name of the sample database is `SAMPL`.

Note: It is not possible to use more than one ClearQuest schema repository. Silk Central will connect to the default ClearQuest repository.

8. Change the **Record Type**, which is the issue type of ClearQuest.

   When entering an issue in Silk Central, ClearQuest saves the issue with the issue type you define in this field.

9. Click **OK**.

   Silk Central attempts a trial connection to the external system using the information you have provided.

   Note: If an error occurs, please review the information that you have supplied, or consult your administrator.

10. If the trial connection is successful, a confirmation dialog box displays, asking you if you want to map internal issue states to the states of the newly defined profile.

    - Click **Yes** to proceed with the related *Mapping Issue States* procedure.
    - Click **No** to map issue states later.

Issue Manager

Issue Manager, the issue-tracking tool of Silk Central, is fully integrated with Silk Central, enabling you to correlate issues with system requirements and executed tests.

Test issues can be added and managed in the menu through **Tests** > **Details View** > **Issues**. For more information, see the Issue Manager topics in this Help.

Adding Issue Manager Issue Tracking Profiles

To add an Issue Manager issue tracking profile:

1. In the menu, click **Issues** > **Issue Tracking Integrations**. The **Issue Tracking** page displays, listing all issue tracking profiles that have been created for the system.
2. Click **New Profile** to open the **New Issue Tracking Profile** dialog box.
3. Type a **Name** for the new profile.

   This is the name that is displayed in lists where the profiles are available for selection.
4. Type a **Description** for the new profile.
5. Select **Issue Manager** from the **Type** list box.
6. Type a valid **Username** and **Password**.

   These credentials will be used to access the issue tracking system.
7. Type the **Issue Manager URL** of your Issue Manager installation. This is the URL you use to login to Issue Manager, though without the `login` extension at the end.

   For example, if your standard Issue Manager URL is `http://IssueManager/login`, then the correct service URL is `http://IssueManager`.
8. *Optional:* If Issue Manager should communicate with the front-end server through a different URL than the one that users use to access the Web user interface, type this URL into the **Web Service URL** field. This is required for example when users access the Web user interface through a proxy, while Issue Manager needs the internal URL or IP address of the front-end server.
9. Proceed as follows:

   1. Click **Load Projects**. This action will populate the **Project** list box with all initialized Issue Manager projects to which the specified user has access to. Note that only those projects display for which Issue Manager user groups have been defined, and the defined user is a member of at least one user group.
   2. Select the **Project** where Issue Manager issues are maintained.

Caution: We recommend not to use identical projects for Issue Manager and Silk Central, as this limits flexibility in working with both tools on different future projects.

10. Click **OK**.

    Silk Central attempts a trial connection to the external system using the information you have provided.

    Note: If an error occurs, please review the information that you have supplied, or consult your administrator.

11. If the trial connection is successful, a confirmation dialog box displays, asking you if you want to map internal issue states to the states of the newly defined profile.

    - Click **Yes** to proceed with the related *Mapping Issue States* procedure.
    - Click **No** to map issue states later.

Editing Issue Manager Issue Tracking Profiles

When the server or login credentials of your issue tracking system change, you must edit your issue tracking profile accordingly.

To edit an existing Issue Manager issue tracking profile:

1. In the menu, click **Issues** > **Issue Tracking Integrations**. The **Issue Tracking** page displays, listing all issue tracking profiles that have been created for the system.
2. Click on the name of the issue tracking profile that you want to modify. The **Edit Issue Tracking Profile** dialog box opens.
3. Edit the **Name** of the profile.

   This is the name that is displayed in lists where profiles are available for selection.
4. Edit the **Description** of the profile.
5. *Optional:* Select a new **Type** for the issue tracking profile from the list box.
6. Edit the **Username** and **Password**.

   These credentials are used to access your issue tracking system.
7. Edit the **Issue Manager URL** of your Issue Manager installation if the location has changed.

   This is the URL you use to login to Issue Manager, though without the `login` extension at the end. For example, if your standard Issue Manager URL is `http://IssueManager/login`, then the correct service URL would be `http://IssueManager`.
8. *Optional:* If Issue Manager should communicate with the front-end server through a different URL than the one that users use to access the Web user interface, type this URL into the **Web Service URL** field. This is required for example when users access the Web user interface through a proxy, while Issue Manager needs the internal URL or IP address of the front-end server.
9. To change the Issue Manager project, click **Load Projects** to load all projects from the server and update the **Project** list box, then select a project from the **Project** list box.
10. Click **OK**.

    Silk Central attempts a trial connection to the external system using the information you have provided.

    Note: If an error occurs, please review the information that you have supplied, or consult your administrator.

11. If the trial connection is successful, a confirmation dialog box displays, asking you if you want to map internal issue states to the states of the newly defined profile.

    - Click **Yes** to proceed with the related *Mapping Issue States* procedure.
    - Click **No** to map issue states later.

StarTeam Issue Tracking Profiles

This section describes how to configure StarTeam issue tracking profiles to integrate with Silk Central.

StarTeam is a software change management and configuration management tool that enables coordination and management of the software delivery process.

To work with StarTeam profiles and use the go-to-link functionality for change requests in StarTeam, you must have the StarTeam Cross-Platform Client software installed on the computer where the browser is running.

For a list of the StarTeam versions that are supported for integration with Silk Central, refer to the *Silk Central Release Notes*.

Adding StarTeam Issue Tracking Profiles

To add a StarTeam issue tracking profile:

1. In the menu, click **Issues** > **Issue Tracking Integrations**. The **Issue Tracking** page displays, listing all issue tracking profiles that have been created for the system.
2. Click **New Profile** to open the **New Issue Tracking Profile** dialog box.
3. Edit the **Name** of the profile.

   This is the name that is displayed in lists where profiles are available for selection.
4. Type a **Description** for the new profile.
5. Select **StarTeam** from the **Type** list box
6. Type a valid **Username** and **Password**.

   These credentials will be used to access the issue tracking system.
7. Type the **Hostname** of your StarTeam server and the **Port** that is used to connect to the server. If this setting has not been changed, use the default port `49201`.
8. Specify the type of **Encryption** that the profile supports.
9. Click **Load Project** to load all projects from the server and populate the **Project** list box, then select a project from the **Project** list box.
10. Click **Load View** to load all views for the selected project and populate the **View** list box, then select a view from the **View** list box.
11. Click **Load Status Field** to load all enumeration fields for change requests and populate the **Status Field** list box, then select a status field from the **Status Field** list box.

    If you are using a custom workflow in StarTeam, this field is the workflow driver field in StarTeam that maps to the Silk Central issue state.
12. Select a type of link from the **Link Type** list box.

starteam://	**External ID** links on the **Issues** tab will open the cross platform client.
http://	**External ID** links on the **Issues** tab will open the issue in the StarTeam web UI.

13. If you selected `http://` in the **Link Type** list box, enter the web server address of the StarTeam web UI in the **WebServer** field.
14. Select `Yes` or `No` in the **Workflow** field. Select `Yes` to show the required fields that are specified in the workflow of the selected **View**.
15. Click **OK**.

    Silk Central attempts a trial connection to the external system using the information you have provided.

    Note: If an error occurs, please review the information that you have supplied, or consult your administrator.
16. If the trial connection is successful, a confirmation dialog box displays, asking you if you want to map internal issue states to the states of the newly defined profile.

    - Click **Yes** to proceed with the related *Mapping Issue States* procedure.
    - Click **No** to map issue states later.

Editing StarTeam Issue Tracking Profiles

When the server or login credentials of your issue tracking system change, you must edit your issue tracking profile accordingly.

To edit an existing StarTeam issue tracking profile:

1. In the menu, click **Issues** > **Issue Tracking Integrations**. The **Issue Tracking** page displays, listing all issue tracking profiles that have been created for the system.
2. Click on the name of the issue tracking profile that you want to modify. The **Edit Issue Tracking Profile** dialog box opens.
3. Edit the **Name** of the profile.

   This is the name that is displayed in lists where profiles are available for selection.
4. Edit the **Description** of the profile.
5. *Optional:* Select a new **Type** for the issue tracking profile from the list box.
6. Edit the **Username** and **Password**.

   These credentials are used to access your issue tracking system.
7. Edit the **Hostname** of your StarTeam server and the **Port** that is used to connect to the server.
8. Modify the type of **Encryption** that the profile supports.
9. To change the StarTeam project, click **Load Project** to load all projects from the server and update the **Project** list box, then select a project from the **Project** list box.
10. To change the view, click **Load View** to load all views for the selected project and populate the **View** list box, then select a view from the **View** list box.
11. To change the workflow driver field, click **Load Status Field** to load all enumeration fields for change requests and populate the **Status Field** list box, then select a status field from the **Status Field** list box.

    If you are using a custom workflow in StarTeam, this field is the workflow driver field in StarTeam that maps to the Silk Central issue state.
12. Select a type of link from the **Link Type** list box.

starteam://	**External ID** links on the **Issues** tab will open the cross platform client.
http://	**External ID** links on the **Issues** tab will open the issue in the StarTeam web UI.

13. If you selected `http://` in the **Link Type** list box, enter the web server address of the StarTeam web UI in the **WebServer** field.
14. Select `Yes` or `No` in the **Workflow** field. Select `Yes` to show the required fields that are specified in the workflow of the selected **View**.
15. Click **OK**.

    Silk Central attempts a trial connection to the external system using the information you have provided.

    Note: If an error occurs, please review the information that you have supplied, or consult your administrator.
16. If the trial connection is successful, a confirmation dialog box displays, asking you if you want to map internal issue states to the states of the newly defined profile.

    - Click **Yes** to proceed with the related *Mapping Issue States* procedure.
    - Click **No** to map issue states later.

Team Foundation Server

This section describes how to configure Team Foundation Server (TFS) issue tracking profiles to integrate with Silk Central.

TFS versions that are currently supported for integration with Silk Central: Team Foundation Server 2010, 2012, 2013

Installing a Team Foundation Server Web Service Proxy

To communicate with a TFS, you need to install a Team Foundation Server Web Service Proxy as an interface to the TFS.

To install a TFS proxy service:

1. Install Microsoft Visual Studio Team Explorer from *http://www.microsoft.com/downloads/details.aspx?FamilyID=fe4f9904-0480-4c9d-a264-02fedd78ab38*.
2. Install IIS and the Web Deployment Tool, for example with the Web Platform Installer from *http://www.microsoft.com/web/downloads/default.aspx*.
3. Download the Team Foundation Server Web Service Proxy from **Help** > **Tools**.
4. Unzip the downloaded package.
5. Open a command shell and type `DotNetTfsWebServiceProxy.deploy.cmd /Y` to install the proxy service. If an error message box displays, stating that ASP.NET 4 is required, refer to *http://msdn.microsoft.com/en-us/library/k6h9cz8h.aspx*.
6. Open the IIS Manager.
7. Verify that the new website exists.
8. In the root folder of the virtual directory, open the `Web.config` file.
9. In the *appSettings* section of the file, modify the value of the key *WorkItemTrackingCacheRoot* to a local directory.

   For example:

   ```
   <appSettings>
     <add key="WorkItemTrackingCacheRoot" value="C:\temp" />
   </appSettings>
   ```
10. If the directory you have specified does not exist, create it.
11. Grant **Everyone** full rights on the specified directory.

For additional information on deploying an ASP.NET Web Application, refer to *http://msdn.microsoft.com/en-us/library/ee942158.aspx*.

Adding TFS Issue Tracking Profiles

You need to configure a Team Foundation Server Web Service Proxy, which is provided by Micro Focus to enable Silk Central to access TFS issues.

Important: This is not the Team Foundation Server Proxy provided by Microsoft.

To add a TFS issue tracking profile:

1. In the menu, click **Issues** > **Issue Tracking Integrations**. The **Issue Tracking** page displays, listing all issue tracking profiles that have been created for the system.
2. Click **New Profile** to open the **New Issue Tracking Profile** dialog box.
3. Type a **Name** for the new profile.

   This is the name that is displayed in lists where the profiles are available for selection.
4. Type a **Description** for the new profile.
5. Select **Team Foundation Server <version>** from the **Type** list box.
6. Type a valid **Username** and **Password**.

   These credentials will be used to access the issue tracking system.
7. Type the **Domain** of the TFS user.
8. Enter the URL of your TFS installation.

   For example, `http://tfsserver:8080/tfs`.

9. Type the **Collection** to which your project belongs.

   For example `DefaultCollection`.

   All projects in the collection are listed in the **Projects** list box.
10. Select the **Project** from the list box.
11. Type the URL of your TFS proxy. For example `http://tfsproxyserver/DotNetTfsWebServiceProxy_deploy/TfsWebServiceProxy.asmx`.
12. Click **Load Work Item Type**. The **Work Item Type** list box is populated with the available work item types.
13. Select the **Work Item Type** from the list box.
14. Click **Load Initial State**. The **Initial State** list box is populated with the states that are allowed for the selected work item type.
15. Click **OK**.

    Silk Central attempts a trial connection to the external system using the information you have provided.

    Note: If an error occurs, please review the information that you have supplied, or consult your administrator.
16. If the trial connection is successful, a confirmation dialog box displays, asking you if you want to map internal issue states to the states of the newly defined profile.

    - Click **Yes** to proceed with the related *Mapping Issue States* procedure.
    - Click **No** to map issue states later.

Editing TFS Issue Tracking Profiles

When the server or login credentials of your issue tracking system change, you must edit your issue tracking profile accordingly.

To edit an existing TFS issue tracking profile:

1. In the menu, click **Issues** > **Issue Tracking Integrations**. The **Issue Tracking** page displays, listing all issue tracking profiles that have been created for the system.
2. Click on the name of the issue tracking profile that you want to modify. The **Edit Issue Tracking Profile** dialog box opens.
3. Edit the **Name** of the profile.

   This is the name that is displayed in lists where profiles are available for selection.
4. Edit the **Description** of the profile.
5. *Optional:* Select a new **Type** for the issue tracking profile from the list box.
6. Edit the **Username** and **Password**.

   These credentials are used to access your issue tracking system.
7. Edit the **Domain** of the TFS user.
8. Edit the **URL** and **Collection** of your TFS installation.
9. Select a different **Project**.
10. Edit the URL and port of your TFS proxy.
11. Click **OK**.

    Silk Central attempts a trial connection to the external system using the information you have provided.

    Note: If an error occurs, please review the information that you have supplied, or consult your administrator.

Other Integrations

Integrating Silk Central into Rally

To use the project management tool Rally with Silk Central, you have to integrate Silk Central into Rally.

A mashup is shipped with Silk Central, that enables you to display user-story related test-coverage information from Silk Central in Rally. You can link each test in Silk Central to one or more user stories in Rally. To link tests to a user story, assign an attribute with the value of the formatted user-story ID in Rally to each test.

Creating a Custom HTML App in Rally

Create a custom app in Rally using HTML or Javascript to display user-story related test-coverage information.

To create a custom HTML app:

1. Navigate to the tab in Rally where your custom app should reside.
2. Click **Customize Page** and click **Add App**. The **App Catalog** displays.
3. Click **Custom HTML** under **Custom** and click **Add This App**.
4. Enter a title and switch to Silk Central.
5. In the menu, click **Help** > **Tools** .
6. Click **Rally Iteration Status Mashup** and copy the HTML code.
7. Switch back to Rally and paste the HTML code into the **HTML** field.
8. Configure the script in the field to match your Silk Central environment:
   - Check if the valid script source is set, for example `<script type="text/javascript" src="http://localhost:19120/silkroot/script/sctm-toolkit.js"></script>`.
   - Check if the valid URL for Silk Central is set, for example `var SCTM_URL = "http://localhost:19120/"`.
   - Check if a valid Silk Central project ID is set, for example `var SCTM_PROJECT_ID = 0`.
   - Check if a valid attribute name is set, for example `var SCTM_ATTRIBUTE_FOR_RALLY_US = "rallyattr"`.
   - Make sure usage of the `FormattedID` from Rally is enabled, `var USE_FORMATTED_ID = true`.
9. Click **Save**. Your custom HTML app in Rally is created.

Linking User Stories from Rally to Tests

To link Rally user stories to Silk Central tests:

1. Select the project in Silk Central that contains the tests you want to link the Rally user stories to.
2. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
3. Click the **Attributes** tab.
4. Click **New Attribute**. The **New Attribute** dialog box displays.
5. Type `rallyattr` in the **Name** field.
6. Select **Text** from the **Type** list.
7. Click **OK** to create the new attribute.
8. Assign the new attribute to each test that you want to link user stories from Rally to.
9. Set the value of the attribute to be the value of the **FormattedID** of the appropriate Rally user story for each test. If you assign multiple stories to a single test, separate the IDs with a comma and put no whitespace characters between them. For example, `US10,US12,US14`.

SAP Solution Manager Integration

Describes how to configure and to use the integration between Silk Central and SAP Solution Manager application management solution (SAP Solution Manager).

SAP Solution Manager facilitates technical support for distributed systems, covering solution deployment, operation, and continuous improvement. SAP Solution Manager is a centralized, robust application management and administration solution, that combines tools, content, and direct access to SAP to increase the reliability of solutions and lower total cost of ownership. For additional information on the SAP Solution Manager, refer to the SAP Solution Manager documentation.

The integration between Silk Central and SAP Solution Manager allows for the synchronization of SAP Solution Manager business processes and incidents as Silk Central requirements and issues.

System Requirements for SAP Solution Manager Integration

The following are the system requirements for the SAP Solution Manager integration plugin:

- Silk Central 12.1
- SAP Solution Manager 7.1 or later.
- The *Silk Central Integration Hub for SAP Solution Manager* must be installed in SAP Solution Manager.

Configuring SAP Solution Manager

Configure SAP Solution Manager to enable the integration with Silk Central.

For additional information, see `Configuration_Guide_SilkCentral_Integration_Hub_for_SAP.docx` and `User_Guide_SilkCentral_Integration_Hub_for_SAP.docx`, which are included in the SAP Solution Manager plug-in.

For this integration to get valid links from SAP Solution Manager to Silk Central, the front-end server machine of Silk Central must have a valid fully qualified name.

Adding SAP Solution Manager Issue Tracking Profiles

To add a SAP Solution Manager issue tracking profile:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Issue Tracking** tab. The **Issue Tracking** page opens, listing all of the issue tracking profiles that have been created for the system.
3. Click **New Profile** to open the **New Issue Tracking Profile** dialog box.
4. Type a **Name** for the new profile.

   This is the name that is displayed in lists where the profiles are available for selection.
5. Type a **Description** for the new profile.
6. Select **SAP Solution Manager** from the **Type** list box.
7. Type a valid **Username** and **Password**.

   These credentials will be used to access the issue tracking system.
8. Type the **URL** of the `Z-SCTM_ADAPTER` web service of SAP Solution Manager.
9. Click **Load Project** to load all projects from the server and populate the **Project** list box, then select a project from the **Project** list box.
10. Click **Load Default Incident Type** to load all possible incident types and populate the **Default Incident Type** list box.

11. Select an incident type from the **Default Incident Type** list box. If you are creating links to existing incidents in SAP Solution Manager and you do not specify the incident type, this type will be used for it.
12. Click **OK**.

    Silk Central attempts a trial connection to the external system using the information you have provided.

    Note: If an error occurs, please review the information that you have supplied, or consult your administrator.
13. If the trial connection is successful, a confirmation dialog box displays, asking you if you want to map internal issue states to the states of the newly defined profile.
    - Click **Yes** to proceed with the related *Mapping Issue States* procedure.
    - Click **No** to map issue states later.

Enabling Requirements Integration with SAP Solution Manager

1. In the menu, click **Projects** > **Project List**.
2. Select the project to which you want to establish integration.
3. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
4. Click the **Requirements Management** tab.
5. In the SAP Solution Manager section, click **Configure**.
6. Enter the **URL** of the `Z_SCTM_ADAPTER` web service of SAP Solution Manager.
7. Enter the **Username** and **Password**.
8. Click **Test Connection** to confirm that the host and user credentials are correct. If the settings are correct, a **Test connection was successful** message displays.
9. Click **Load** to load all available projects and select the correct one.
10. Optional: Check the **Enable creation of unassigned requirements** check box to enable creation and editing of unmapped requirements in Silk Central projects that are configured for integration.
11. Click **OK** to confirm and close the dialog.

Requirement Management Tools

Caliber Integration

This section describes how to integrate Caliber with Silk Central.

Note: Caliber user defined attribute **Multiple selection user list** and **Multiple selection group list** must be mapped to the Silk Central text attribute type and not list type.

Enabling Integration with Caliber

To enable integration with Caliber:

1. In the menu, click **Projects** > **Project List**.
2. Select the project to which you want to establish integration.
3. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
4. Click the **Requirements Management** tab.
5. Click **New Integration**.

Note: To enable creation and editing of unmapped requirements within the integrated requirements, check the **Allow internal requirements** check box.

The **New Integration** dialog box opens.

6. Select **Caliber** from the list and click **Next**. The **Edit Configuration** dialog box opens.
7. Type a **Name** for the new profile.

   This is the name that is displayed in lists where the profiles are available for selection.
8. Type the **Hostname** of the machine where the external server is installed.
9. Type valid **Username** and **Password** credentials for the requirements management server.
10. Click **Test Connection** to confirm that the host and user credentials you have entered are correct.

    A **Connection successful** message box displays if the settings are correct. Click **OK** to continue.

    Note: Consult your system administrator if you are not able to establish a connection.
11. Click **OK**.
12. From the **Project** list box, select the external project with which the Silk Central project is to be integrated. The requirement types that are available with the selected project are automatically populated into the **Requirement Types** field. The baselines that are available with the selected project are automatically populated into the **Baseline** field.
13. Select a **Baseline** from the external project that should be integrated with the Silk Central project.

    Your selections are displayed on the **Edit Configuration** dialog box.
14. Click **OK**.
15. Select one or more requirement types from the external project that should be integrated with the Silk Central project.

    Use `CTRL + Click` to select multiple requirement types.
16. Click **OK** to save your settings.

Baseline Support for Caliber Integration

You can select the current baseline or existing user-defined baselines for Caliber integration. You cannot import modified baselined requirements into Silk Central. Requirements that are not of the current baseline can only be changed in Caliber if the version of the requirement that is used for the baseline is changed. Such changes are only updated within Silk Central requirements when a manual or scheduled synchronization is performed.

You can change a baseline after you import it into Silk Central. You can change the configured baseline to a different user-defined baseline or the current baseline. After such a change, the next synchronization of the baseline, either manual or scheduled, will update the Silk Central project and update, create, or delete requirements as required. When a baseline is changed, a message displays that states that the changes will take effect after the next synchronization.

Handling Test Assignments in Caliber

Assigned tests are displayed, managed, and created as traces (“Trace to”) of synchronized requirements in Caliber.

The External Traceability for Silk Central must be enabled for a Caliber project within the Caliber Administrator and the correct Silk Central front-end server must be configured. Click **Edit** for the Silk Central External Traceability for correct project within the Caliber Administrator.

When a project is synchronized with a Silk Central project, the assigned tests of the synchronized Silk Central requirements will display as traces ("Trace To") of the Caliber requirement. If you edit these assignments in Silk Central, the changes will be reflected immediately in Caliber.

Copying Caliber-Integrated Projects

To manage Caliber baselines when copying Silk Central projects:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Requirements Management** tab.
3. Verify that the baseline you want to save is selected.

   Note: If a baseline is changed, you must perform a synchronization to update the project requirements with the baseline changes, before you can copy an associated Silk Central project. The integration configuration is only copied if you select a baseline other than the current baseline. If you select the current baseline, you need to specify if you want to keep the integration configuration in the original project or move it to the copied project.
4. If the baseline that you want to save is not selected, click **Edit Configuration**. The **Edit Configuration** dialog box displays.
5. Click **Browse** next to the **Project name** text box. The **Browse Projects** dialog box opens.
6. Select the baseline you want to save, then confirm your selection.
7. In the menu, click **Projects** > **Project List** . The **Projects** page displays, listing all existing projects and project baselines.
8. Click in the **Actions** column of the project you want to copy.

   Note: For full details on copying a project, see the *Administration* topics in this Help.

   The **Copy Project** dialog box displays.
9. Select the items you want to copy into the new project, then confirm your selection.
10. Apply the baseline that you want to continue working with to the Silk Central project.

    Note: After copying a project, the original project and the copy are identical. Define on which you will continue working on by applying the corresponding baseline.

Creating a Baseline for a Caliber-Integrated Project

To create a baseline of a Caliber-integrated Silk Central project:

1. Create a baseline of the Silk Central project. A Silk Central message box displays during the process, asking if you want to enable the Caliber integration for the new baseline.
2. Click **Yes**. When the new baseline is created, the **Baseline Project - Adapt Project Settings** dialog box opens.
3. Click **Edit** to change the requirements integration settings.

   The **Edit Configuration** dialog box opens.
4. Click **Browse** next to the **Project name** text box. The **Browse Projects** dialog box opens.
5. Select a Caliber project, a baseline, and the requirement type for synchronization.
6. Click **Ok** to close the **Browse Projects** dialog box.
7. Click **Ok** to close the **Edit Configuration** dialog box.
8. Click **Finish** to close the **Baseline Project - Adapt Project Settings** dialog box.

Atlassian JIRA Agile Integration

Silk Central offers a requirements integration with Atlassian JIRA Agile, which is based on the project and issue tracking system JIRA. All issue types (the generic object type in JIRA) can be synchronized. Since Atlassian JIRA Agile offers the creation of custom issue types, you can specify a list of Atlassian JIRA Agile issue types in Silk Central that you want to synchronize, such as for example `Bug` or `Improvement`.

Enabling Integration with Atlassian JIRA Agile

To enable integration with Atlassian JIRA Agile:

1. In the menu, click **Projects** > **Project List**.
2. Select the project to which you want to establish integration.
3. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
4. Click the **Requirements Management** tab.
5. Click **New Integration**.

   Note: To enable creation and editing of unmapped requirements within the integrated requirements, check the **Allow internal requirements** check box.

   The **New Integration** dialog box opens.
6. Select **Atlassian JIRA Agile** from the list and click **Next**. The **Edit Configuration** dialog box opens.
7. Type a **Name** for the new profile.

   This is the name that is displayed in lists where the profiles are available for selection.
8. Enter the **URL** of your JIRA Agile server.
9. Type valid **Username** and **Password** credentials for JIRA Agile.
10. In the **Issue Types** field, specify the issue types that you want to synchronize, separated by semicolons (;).

    All issue types (the generic object type in JIRA) can be synchronized. Since Atlassian JIRA Agile offers the creation of custom issue types, you can specify a list of Atlassian JIRA Agile issue types in Silk Central that you want to synchronize, such as for example `Bug` or `Improvement`.
11. Click **Test Connection** to confirm that the host and user credentials you have entered are correct.

    A **Connection successful** message box displays if the settings are correct. Click **OK** to continue.

    Note: Consult your system administrator if you are not able to establish a connection.
12. Click **Load**. The **Project** list is populated with all the projects in JIRA Agile that you have permissions for.
13. From the **Project** list, select the external project with which the Silk Central project is to be integrated.
14. Click **OK** to save your settings.

Atlassian JIRA Agile Property Mappings

The following properties have a default mapping between JIRA Agile and Silk Central:

- User stories that are in JIRA Agile's `Backlog` are reflected in Silk Central by having the `Sprint` property value set to `Backlog`. This enables you to easily search for them by creating a filter.
- The default `Priority` values of JIRA Agile's user stories are mapped to Silk Central's `Priority` property. If you are not using JIRA Agile's default `Priority` values, you can customize this mapping.

Viewing JIRA Agile Backlog Stories in Silk Central

1. In the menu, click **Requirements** > **Details View**.
2. Create a new filter with the following criteria:
   - **Selection Criteria**: `External Custom Attributes`
   - **Property**: `Sprint`
   - **Value**: `Backlog`
3. Click **Apply** to apply the filter immediately or **Save and apply** to save the filter for future reuse.

Mapping JIRA Agile Priority values to Silk Central's Priority

The default `Priority` values of JIRA Agile's user stories are mapped to Silk Central's `Priority` property as follows:

- Blocker=SC_Priority_Critical
- Critical=SC_Priority_High
- Major=SC_Priority_Medium
- Minor=SC_Priority_Low
- Trivial=SC_Priority_Low

If you are not using JIRA Agile's default `Priority` values, or if you want to customize the mapping, your Silk Central administrator should customize the settings as follows:

1. Stop the application server.
2. Open the file `propertyMappings.properties` with a text editor. This file is located in the JIRA Agile plugin-file `JIRAAgile.zip` on the application server in the `plugins` folder.
3. Search for `SC_Priority=Priority`, beneath which you can customize the mapping of JIRA Agile's `Priority` values to Silk Central's `Priority`.

   Note: Silk Central `Priority` values require the prefix `SC_Priority_`.
4. Save and close the file
5. Re-start the application server.

IBM Rational DOORS Integration

This section describes how to integrate Silk Central and IBM Rational® DOORS® (DOORS).

Installing IBM Rational DOORS on the Front-End Server

To integrate Silk Central and DOORS, install the DOORS client on the Silk Central front-end server machine. If you use more than one front-end server machine, you must install the DOORS client to the same directory on each of the machines.

To install the DOORS client on the Silk Central front-end server machine:

1. In the menu, click **Help** > **Tools** .
2. Click **Silk Central Add-In for IBM Rational DOORS** to download the DOORS plug-in package.

   The package contains two ZIP-Archives:

   - `DoorsRM.zip`
   - `DoorsClientLibs.zip`
3. Create a new folder with the name `testmanager` in the `…\lib\dxl` folder of your DOORS client installation.

   The default path for this folder is `C:\Program Files (x86)\IBM\Rational\DOORS\<version>`.
4. Extract all DOORS script files from `DoorsClientLibs.zip` to this folder.

The plug-in package `DoorsRMPlugin.zip` is automatically installed to the `Plugins` folder of your Silk Central application server installation during the setup process. During startup of the application server, this plug-in will be published to all front-end servers.

Enabling Integration with IBM Rational DOORS

To enable integration with DOORS:

1. In the menu, click **Projects** > **Project List**.
2. Select the project to which you want to establish integration.

3. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
4. Click the **Requirements Management** tab.
5. Click **New Integration**.

   Note: To enable creation and editing of unmapped requirements within the integrated requirements, check the **Allow internal requirements** check box.

   The **New Integration** dialog box opens.
6. Select **IBM Rational DOORS** from the list and click **Next**. The **Edit Configuration** dialog box opens.
7. Type a **Name** for the new profile.

   This is the name that is displayed in lists where the profiles are available for selection.
8. In the **RM service URL** text box, type the URL of the Silk Central DOORS requirement Web Service.

   The default value should point to the correct location already. For example `http://MySCTMHost:19120/services/doorsrequirementsmanagement`.
9. Type valid **Username** and **Password** credentials for the requirements management server.
10. The default DOORS client installation path is displayed in the **DOORS Installation Path** text box. If this path is not correct, click **Browse** to browse to and select the correct destination in the front-end server directory structure.
11. Click **Test Connection** to confirm that the host and user credentials you have entered are correct.

    A **Connection successful** message box displays if the settings are correct. Click **OK** to continue.

    Note: Consult your system administrator if you are not able to establish a connection.
12. Click **Browse** next to the **Project name** text box to open the **Browse Requirement Types** dialog box. From the **Project** text box, select the external project with which the Silk Central project is to be synchronized.

    The requirement types that are available with the selected project are automatically populated into the **Requirement types** text box. Select the requirement types that are to be synchronized and click **OK**. Use `CTRL` + `CLICK` to select multiple requirement types.

    Your selections are now displayed on the **Edit Configuration** dialog box.
13. Click **OK** to save your settings.

    Caution: As the DOORS application object is used for communication, and this object does not support login data, but rather requires a running DOORS client, Silk Central starts each DOORS client process with the provided login data and then uses that same data for all subsequent application objects. Therefore only one set of DOORS login credentials is supported for communication at one time. It is recommended that you use the same DOORS credentials for all configurations so that integration tasks can be performed on the front-end server for all projects at the same time. When a second set of credentials is used, the second set only works after all sessions using of the first set of credentials have timed out.

IBM Rational RequisitePro Integration

The topics in this section describe the integration between IBM Rational RequisitePro and Silk Central.

Enabling Integration with IBM Rational RequisitePro

Note: You can only configure one IBM Rational RequisitePro integration per project.

To enable integration with IBM Rational RequisitePro:

1. In the menu, click **Projects** > **Project List**.

2. Select the project to which you want to establish integration.
3. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
4. Click the **Requirements Management** tab.
5. Click **New Integration**.

   Note: To enable creation and editing of unmapped requirements within the integrated requirements, check the **Allow internal requirements** check box.

   The **New Integration** dialog box opens.
6. Select **IBM Rational RequisitePro** from the list and click **Next**. The **Edit Configuration** dialog box opens.
7. Type a **Name** for the new profile.

   This is the name that is displayed in lists where the profiles are available for selection.
8. Type the **Project path (UNC)** to the machine where the external server is installed.
9. Type valid **UNC username** and **UNC password** credentials for the machine where the external server is installed.
10. Type valid **Username** and **Password** credentials for the requirements management server.
11. Click **Test Connection** to confirm that the host and user credentials you have entered are correct.

    A **Connection successful** message box displays if the settings are correct. Click **OK** to continue.

    Note: Consult your system administrator if you are not able to establish a connection.
12. Click **Edit Packages and Requirement Types**.

    Your selections are then displayed on the **Edit Configuration** dialog.

    Note: Only requirements of explicitly selected packages will be synchronized. Selecting a parent package does not select the child packages of the parent.

    The **Browse Packages & Requirement Types** dialog box opens. The packages and requirement types that are available with the selected project are automatically populated into the **Packages** and **Requirement Types** list boxes.
13. From the **Packages** list box, select one or more packages from the external project that should be integrated with the Silk Central project.

    Use `CTRL + CLICK` to select multiple packages.
14. From the **Requirement types** list box, select one or more requirement types from the external project that should be integrated with the Silk Central project.

    Use `CTRL + CLICK` to select multiple requirement types.
15. Click **OK**. The **Browse Packages & Requirement Types** dialog box closes.
16. Click **OK** to save your settings.

Rally Integration

Integrating the project management tool Rally enables you to define user stories which you can then use as requirements in Silk Central. You can then create tests in Silk Central to cover these requirements. To update the tests you have created with any changes to the corresponding user stories in Rally, synchronize the requirements.

The following user story properties are synchronized from the Rally REST Service. You can use these properties to help filter and categorize the user stories.:

Property	Description
Name	The name of the user story in Rally.
Rally ID	The identifier of the user story in Rally. This property is the External ID of the requirement in Silk Central.
Description	The description of the user story in Rally.
Iteration	The iteration in Rally in which the user story is included.
Project	The project in Rally in which the user story is included.
Release	The project release in which the user story is included.
State	The state of progress of the user story in Rally. The following states are available: • `Defined` • `In-Progress` • `Completed` • `Accepted`
Plan Estimate (Story Points)	The estimated time in Rally for the user story to be completed. The time is estimated in story points.

Enabling Integration with Rally

To enable integration with Rally:

1. In the menu, click **Projects** > **Project List**.
2. Select the project to which you want to establish integration.
3. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
4. Click the **Requirements Management** tab.
5. Click **New Integration**.

   Note: To enable creation and editing of unmapped requirements within the integrated requirements, check the **Allow internal requirements** check box.

   The **New Integration** dialog box opens.
6. Select **Rally** from the list and click **Next**. The **Edit Configuration** dialog box opens.
7. Type a **Name** for the new profile.

   This is the name that is displayed in lists where the profiles are available for selection.
8. Type the **URL**.
9. Type valid **Username** and **Password** credentials for Rally.
10. *Optional:* If direct access to the Internet is restricted, and the Rally REST service is located in a machine outside the scope of the internal network, use the **Proxy Host** and **Proxy Port** text boxes to specify a proxy through which Silk Central can connect to Rally .

    Note: To connect to Rally by using a proxy, you need to fill out both text boxes, **Proxy Host** and **Proxy Port**.
11. Click **Test Connection** to confirm that the host and user credentials you have entered are correct.

    A **Connection successful** message box displays if the settings are correct. Click **OK** to continue.

    Note: Consult your system administrator if you are not able to establish a connection.
12. Click **OK**.

13. Click **Load**. The **Project** list box is populated with all the projects from all workspaces in Rally that you have permissions for.
14. From the **Project** list box, select the external project with which the Silk Central project is to be integrated.
15. Click **OK** to save your settings.

Source Control Profile Integrations

Apache Commons Virtual File System

This section describes how to configure Virtual File System (VFS) source control profiles.

A VFS is an abstraction layer on top of a more concrete file system. The purpose of a VFS is to allow client applications to access different types of concrete file systems in a uniform way. Apache Commons VFS provides a single API for accessing various file systems. It presents a uniform view of the files from various sources. The protocols that are currently supported for VFS by Silk Central are:

Protocol	Description
http	Copies the given file. This protocol type is also supported for copying and unpacking ZIP, JAR, or other zipped files. It is required to specify a .zip file on a http server. For example, `zip:http://myTestServer/myTests.zip`. The .zip file will be extracted on the execution server.
ftp	Copies the given file. This protocol type is also supported for copying and unpacking ZIP, JAR, or other zipped files.
smb	Server Message Block (smb) copies all files and folders. This protocol can be used instead of a UNC profile. For example, the VFS smb path `smb://server-name/shared-resource-path` is equivalent to the UNC path `\\server-name\shared-resource-path`.

Note: When you create a new ProcessExecutor test that uses VFS for source control, you need to specify the complete path to the executable in the **Executable Name** text box.

Adding VFS Source Control Profiles

To create a VFS source control profile:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Source Control** tab. The **Source Control** page opens, listing all of the source control profiles that have been created for the system.
3. Click **New Profile** to open the **New Source Control Profile** dialog box.
4. Type a **Name** for the new profile.

   This is the name that is displayed in lists where the profiles are available for selection.
5. Select **VFS** from the **Source control system** list box.
6. Type the URL of the VFS **Repository** you want to access.

   Specify the appropriate protocol type in the URL:

FTP	`ftp://<ftp server URL>`
HTTP	http://<http server URL>
SMB	smb://<Samba server url>

Note: This field is case sensitive.

Note: HTTP, FTP and SMB are also supported for zipped files. In order to point to a zipped file the URL must be adjusted to `<zipped file type>:<protocol>://<server URL pointing to zipped file>` to include the type of the zipped file. For example, `zip:http://193.80.200.135/<path>/archive.zip` or `jar:http://193.80.200.135/<path>/archive.jar`.

7. Type a valid VFS **Username** and **Password**.

   These credentials will be used to access your VFS repository. The SMB protocol allows including the domain name in the username in the following form: `domain/username`.
8. Type the **Working folder** to which the Silk Central execution server should copy the source files.

   The working folder must be a local path. For example, `C:\TempSources\`.
9. Type the **Project path** you want this profile to use. Click **Browse** to display the **Select Project Path** dialog box. The **Select Project Path** dialog box opens. Select the desired project path in the tree view and click **OK**. Leaving this text box empty sets the project path to the root directory.
10. Click **OK**.

    Silk Central attempts a trial connection to the external system using the information you have provided.

    Note: If an error occurs, please review the information that you have supplied, or consult your administrator.

If the trial connection is successful, you are returned to the **Source Control** page.

Editing VFS Source Control Profiles

To modify a VFS source control profile:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Source Control** tab. The **Source Control** page opens, listing all of the source control profiles that have been created for the system.
3. Click on the name of the source control profile that you want to modify. The **Edit Source Control Profile** dialog box opens.
4. Edit the **Name** of the profile.

   This is the name that is displayed in lists where profiles are available for selection.
5. Edit the URL of the VFS **Repository** you want to access.

   Note: This field is case sensitive.
6. Edit the **Username** and **Password**.

   These credentials are used to access your repository.
7. Edit the **Working folder** to which the Silk Central execution server copies the source files.

   The working folder must be a local path. For example, `C:\TempSources\`.
8. Edit the **Project path** you want this profile to use.
9. Click **OK**.

   Silk Central attempts a trial connection to the external system using the information you have provided.

   Note: If an error occurs, please review the information that you have supplied, or consult your administrator.

If the trial connection is successful, you are returned to the **Source Control** page.

Git

This section describes how to configure Git source control profiles.

Git is a distributed revision control and source code management (SCM) system with an emphasis on speed. Every Git working directory is a full-fledged repository with complete history and full version tracking capabilities, not dependent on network access or a central server.

Adding Git Source Control Profiles

To create a Git source control profile:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Source Control** tab. The **Source Control** page opens, listing all of the source control profiles that have been created for the system.
3. Click **New Profile** to open the **New Source Control Profile** dialog box.
4. Type a **Name** for the new profile.

   This is the name that is displayed in lists where the profiles are available for selection.
5. Select **Git** from the **Source control system** list box.
6. Type the URL of the Git **Repository** you want to access.
7. Type a valid Git **Username** and **Password**, if required.
8. Type the **Working folder** to which the Silk Central execution server should copy the source files.

   The working folder must be a local path. For example, `C:\TempSources\`.
9. Type the **Project path** you want this profile to use. Click **Browse** to display the **Select Project Path** dialog box. The **Select Project Path** dialog box opens. Select the desired project path in the tree view and click **OK**. Leaving this text box empty sets the project path to the root directory.
10. Click **OK**.

    Silk Central attempts a trial connection to the external system using the information you have provided.

    Note: If an error occurs, please review the information that you have supplied, or consult your administrator.

If the trial connection is successful, you are returned to the **Source Control** page.

Editing Git Source Control Profiles

To modify a Git source control profile:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Source Control** tab. The **Source Control** page opens, listing all of the source control profiles that have been created for the system.
3. Click on the name of the source control profile that you want to modify. The **Edit Source Control Profile** dialog box opens.
4. Edit the **Name** of the profile.

   This is the name that is displayed in lists where profiles are available for selection.
5. Edit the URL of the Git **Repository** you want to access.

Note: This field is case sensitive.

6. Edit the **Username** and **Password**.

   These credentials are used to access your repository.
7. Edit the **Working folder** to which the Silk Central execution server copies the source files.

   The working folder must be a local path. For example, `C:\TempSources\`.
8. Edit the **Project path** you want this profile to use.
9. Click **OK**.

   Silk Central attempts a trial connection to the external system using the information you have provided.

   Note: If an error occurs, please review the information that you have supplied, or consult your administrator.

If the trial connection is successful, you are returned to the **Source Control** page.

Microsoft Team Foundation Server

This section describes how to configure Team Foundation Server (TFS) source control profiles.

TFS versions that are currently supported for integration with Silk Central: Team Foundation Server 2010, 2012, 2013

Note: To add a TFS source control profile, the Microsoft Visual Studio Team Explorer Everywhere command-line client needs to be installed on the front-end server and every execution server on which you want to use the source control profile. You can download the CLC from the *Microsoft Download Center*. You must run Team Explorer Everywhere and accept the license agreement to make the integration work. For more information, refer to this *knowledge base article*.

Adding TFS Source Control Profiles

To add a TFS source control profile, the Microsoft Visual Studio Team Explorer Everywhere command-line client needs to be installed on the front-end server and every execution server on which you want to use the source control profile. You can download the CLC from the *Microsoft Download Center*. You must run Team Explorer Everywhere and accept the license agreement to make the integration work. For more information, refer to this *knowledge base article*.

To create a TFS source control profile:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Source Control** tab. The **Source Control** page opens, listing all of the source control profiles that have been created for the system.
3. Click **New Profile** to open the **New Source Control Profile** dialog box.
4. Type a **Name** for the new profile.

   This is the name that is displayed in lists where the profiles are available for selection.
5. Select **Team Foundation Server** from the **Source control system** list box.
6. Enter the **URL** of your TFS installation.

   For example, `http://tfsserver:8080/tfs`.
7. Type the **Domain** of the TFS user.
8. Type a valid **Username** and **Password**.

   These credentials will be used to access your repository.
9. Type the **Working folder** to which the Silk Central execution server should copy the source files.

   The working folder must be a local path. For example, `C:\TempSources\`.

10. Type the **Project path** you want this profile to use. Click **Browse** to display the **Select Project Path** dialog box. The **Select Project Path** dialog box opens. Select the desired project path in the tree view and click **OK**. Leaving this text box empty sets the project path to the root directory.
11. Click **OK**.

    Silk Central attempts a trial connection to the external system using the information you have provided.

    Note: If an error occurs, please review the information that you have supplied, or consult your administrator.

If the trial connection is successful, you are returned to the **Source Control** page.

Editing TFS Source Control Profiles

To add a TFS source control profile, the Microsoft Visual Studio Team Explorer Everywhere command-line client needs to be installed on the front-end server and every execution server on which you want to use the source control profile. You can download the CLC from the *Microsoft Download Center*. You must run Team Explorer Everywhere and accept the license agreement to make the integration work. For more information, refer to this *knowledge base article*.

To modify a TFS source control profile:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Source Control** tab. The **Source Control** page opens, listing all of the source control profiles that have been created for the system.
3. Click on the name of the source control profile that you want to modify. The **Edit Source Control Profile** dialog box opens.
4. Edit the **Name** of the profile.

   This is the name that is displayed in lists where profiles are available for selection.
5. Edit the URL of the TFS **Repository** you want to access.
6. Edit the **Username** and **Password**.

   These credentials are used to access your repository.
7. Edit the **Working folder** to which the Silk Central execution server copies the source files.

   The working folder must be a local path. For example, `C:\TempSources\`.
8. Edit the **Project path** you want this profile to use.
9. Click **OK**.

   Silk Central attempts a trial connection to the external system using the information you have provided.

   Note: If an error occurs, please review the information that you have supplied, or consult your administrator.

If the trial connection is successful, you are returned to the **Source Control** page.

Serena Version Manager (PVCS)

This section describes how to configure Serena Version Manager (PVCS) source control profiles.

Serena Version Manager, from the makers of PVCS, is the full-featured solution for version control and revision management in software projects. More than simply storing code revisions, Version Manager is a robust, full-featured solution with security, high performance, and varying levels of support for distributed teams.

Note: To add a PVCS source control profile, the PVCS client needs to be installed on the front-end server and every execution server on which you want to use the source control profile.

Adding PVCS Source Control Profiles

To create a PVCS source control profile:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Source Control** tab. The **Source Control** page opens, listing all of the source control profiles that have been created for the system.
3. Click **New Profile** to open the **New Source Control Profile** dialog box.
4. Type a **Name** for the new profile.

   This is the name that is displayed in lists where the profiles are available for selection.
5. Select **PVCS** from the **Source control system** list box.
6. Type the UNC path of the PVCS **Repository** you want to access.

   If you do not know the UNC path of the repository, consult your PVCS administrator.
7. Type a valid **UNC username** and **UNC password**.

   These credentials are required to access the UNC path of the configuration file.
8. Type the **Working folder** to which the Silk Central execution server should copy the source files.

   The working folder must be a local path. For example, `C:\TempSources\`.
9. Type the **Execution path**. This is the local path of the PVCS installation, where the command line tool `pcli.exe` is located. The default path is `C:\Program Files\Serena\vm\win32\bin`.

   Note: The PVCS client software must be installed on the front-end server and each execution server. PVCS must be installed in identical paths on each machine. For example, if you install PVCS on the TestPartner front-end server to `C:\Program Files\Serena\`, you must install PVCS in the same path on the execution servers.
10. Type a valid **Username** and **Password**.

    These credentials will be used to access your repository.
11. Type the **Project path** you want this profile to use. Click **Browse** to display the **Select Project Path** dialog box. The **Select Project Path** dialog box opens. Select the desired project path in the tree view and click **OK**. Leaving this text box empty sets the project path to the root directory.
12. Click **OK**.

    Silk Central attempts a trial connection to the external system using the information you have provided.

    Note: If an error occurs, please review the information that you have supplied, or consult your administrator.

If the trial connection is successful, you are returned to the **Source Control** page.

Editing PVCS Source Control Profiles

To modify a PVCS source control profile:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Source Control** tab. The **Source Control** page opens, listing all of the source control profiles that have been created for the system.
3. Click on the name of the source control profile that you want to modify. The **Edit Source Control Profile** dialog box opens.
4. Edit the **Name** of the profile.

   This is the name that is displayed in lists where profiles are available for selection.

5. Edit the UNC path of the PVCS **Repository**. If you do not know the UNC path of the repository, consult your PVCS administrator.
6. Edit the **UNC username** and **UNC password** as required. These credentials are required to access the repository UNC path you specified above.
7. Edit the **Working folder** to which the Silk Central execution server copies the source files.

   The working folder must be a local path. For example, `C:\TempSources\`.
8. Edit the **Execution path**. This is the local path of the PVCS installation, where the command line tool `pcli.exe` is located. The default path is `C:\Program Files\Merant\vm\win32\bin`.

   Note: The PVCS client software must be installed on the front-end server and each execution server. PVCS must be installed in identical paths on each machine. For example, if you install PVCS on the Silk Central front-end server to `C:\Program Files\Serena\`, you must install PVCS in the same path on the execution servers.
9. Edit the **Username** and **Password**.

   These credentials are used to access your repository.
10. Edit the **Project path** you want this profile to use.
11. Click **OK**.

    Silk Central attempts a trial connection to the external system using the information you have provided.

    Note: If an error occurs, please review the information that you have supplied, or consult your administrator.

If the trial connection is successful, you are returned to the **Source Control** page.

Silk Test Workbench

This section describes how to configure Silk Test Workbench source control profiles.

Silk Test Workbench is an automated testing tool that accelerates the functional testing of complex applications. Silk Test Workbench provides support for testing applications developed in a wide variety of development tools including Java, .NET, browser-based web applications, and COM components, including both ActiveX controls and automation objects. With Silk Test Workbench, you can record user sessions with your applications to create tests, enhance the test by adding validation and test logic, and play back tests to ensure that the applications work as expected.

Note: To add a Silk Test Workbench source control profile, the Silk Test Workbench client needs to be installed on every execution server on which you want to use the source control profile.

Adding Silk Test Workbench Source Control Profiles

To create a Silk Test Workbench source control profile:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Source Control** tab. The **Source Control** page opens, listing all of the source control profiles that have been created for the system.
3. Click **New Profile** to open the **New Issue Tracking Profile** dialog box.
4. Type a **Name** for the new profile.

   This is the name that is displayed in lists where the profiles are available for selection.
5. Select **Silk Test Workbench Test** from the **Source control system** list box.
6. Select a database type from the **Database type** list box, either SQL Server or Oracle.

Note: The Microsoft Office Access database type is not supported. When connecting to a Silk Test Workbench Oracle database, there is a Silk Test Workbench requirement that the TNS name must be the same as the host server name.

7. Enter the name of the Silk Test Workbench database server in the **Database server** text box.
8. Enter the name of the Silk Test Workbench database in the **Database name** text box.
9. Enter the port number of the Silk Test Workbench database server in the **Database port** text box.
10. Enter the Silk Test Workbench database schema or owner name in the **Database schema/owner name** text box.
11. Enter the name of the database user in the **Database user** text box.
12. Enter the password for the database user in the **Database password** text box.
13. Enter the name of a valid Silk Test Workbench user in the **Silk Test Workbench User name** text box.
14. Enter the password for the Silk Test Workbench user in the **Silk Test Workbench password** text box.
15. Type the **Working folder** to which the Silk Central execution server should copy the source files.

    The working folder must be a local path. For example, `C:\TempSources\`.
16. Click **Retrieve**. All projects are listed in the **Projects** list.
17. Select one or more projects.
18. Click **OK**.

Editing Silk Test Workbench Source Control Profiles

To modify a Silk Test Workbench source control profile:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Source Control** tab. The **Source Control** page opens, listing all of the source control profiles that have been created for the system.
3. Click on the name of the source control profile that you want to modify. The **Edit Source Control Profile** dialog box opens.
4. Edit the **Name** of the profile.

   This is the name that is displayed in lists where profiles are available for selection.
5. Edit the Silk Test Workbench **Database type**.

   Note: The Microsoft Office Access database type is not supported.
6. Choose from the following options:

   - Edit the Silk Test Workbench **Database server**.
   - Edit the Silk Test Workbench **Database name**.
   - Edit the **Database port** number of the Silk Test Workbench database server.
   - Edit the Silk Test Workbench **Database schema/owner name**.
   - Edit the Silk Test Workbench **Database user**.
   - Edit the Silk Test Workbench **Database password**.
   - Edit the Silk Test Workbench **User name**.
   - Edit the Silk Test Workbench **Password**.
7. Edit the **Working folder** to which the Silk Central execution server copies the source files.

   The working folder must be a local path. For example, `C:\TempSources\`.
8. Select one or more projects from the **Projects** list.
9. Click **OK**.

StarTeam Source Control Profiles

This section describes how to configure StarTeam source control profiles.

StarTeam promotes team communication and collaboration through centralized control of all project assets. Protected yet flexible access ensures that team members can work whenever and wherever they like through an extensive choice of Web, desktop, IDE, and command-line clients. StarTeam offers a uniquely comprehensive solution that includes integrated requirements management, change management, defect tracking, file versioning, threaded discussions, and project and task management.

StarTeam versions that are currently supported for integration with Silk Central: StarTeam 13.1, 14.1

Adding StarTeam Source Control Profiles

To create a StarTeam source control profile:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Source Control** tab. The **Source Control** page opens, listing all of the source control profiles that have been created for the system.
3. Click **New Profile** to open the **New Source Control Profile** dialog box.
4. Type a **Name** for the new profile.

   This is the name that is displayed in lists where the profiles are available for selection.
5. Select **StarTeam** from the **Source control system** list box.
6. Type the **Hostname** of your StarTeam server.
7. Type the **Port** that is to be used to connect to the StarTeam server.

   If the port is not changed, use the default port `49201`.
8. Type a valid **Username** and **Password**.

   These credentials will be used to access your repository.
9. Specify if the profile supports **Encryption**.
10. Type the **Working folder** to which the Silk Central execution server should copy the source files.

    The working folder must be a local path. For example, `C:\TempSources\`.
11. Type the **Project path** you want this profile to use. Click **Browse** to display the **Select Project Path** dialog box. The **Select Project Path** dialog box opens. Select the desired project path in the tree view and click **OK**. Leaving this text box empty sets the project path to the root directory.
12. Click **OK**.

    Silk Central attempts a trial connection to the external system using the information you have provided.

    Note: If an error occurs, please review the information that you have supplied, or consult your administrator.

If the trial connection is successful, you are returned to the **Source Control** page.

Editing StarTeam Source Control Profiles

To modify a StarTeam source control profile:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Source Control** tab. The **Source Control** page opens, listing all of the source control profiles that have been created for the system.

3. Click on the name of the source control profile that you want to modify. The **Edit Source Control Profile** dialog box opens.
4. Edit the **Name** of the profile.

   This is the name that is displayed in lists where profiles are available for selection.
5. Choose from the following options:

   - Edit the **Hostname** of your StarTeam server.
   - Edit the port that is to be used to connect to the StarTeam server. If the port is not changed, use the default port `49201`.
   - Specify if the profile supports **Encryption**.
6. Edit the **Project path** you want this profile to use.
7. Edit the **Username** and **Password**.

   These credentials are used to access your repository.
8. Edit the **Working folder** to which the Silk Central execution server copies the source files.

   The working folder must be a local path. For example, `C:\TempSources\`.
9. Click **OK**.

   Silk Central attempts a trial connection to the external system using the information you have provided.

   Note: If an error occurs, please review the information that you have supplied, or consult your administrator.

If the trial connection is successful, you are returned to the **Source Control** page.

Subversion

This section describes how to configure Subversion (SVN) source control profiles.

Subversion (SVN) is the successor to the Concurrent Versions System (CVS). Subversion manages versions using transaction numbers. With each commit, the transaction number is incrementally increased.

What other source control systems call *labels*, Subversion refers to as *tags*. These tags are encoded in the Subversion URL. For example, `http://MyHost/svn/MyApp/trunk` is a Subversion URL and `http://MyHost/svn/MyApp/tags/build1012` is a Subversion tag.

Silk Central supports Subversion tags. If a Subversion URL contains the `trunk` directory, you can define a label `tags/build1012`. This label replaces `trunk` in the Subversion URL.

Note: If a Subversion URL does not contain `trunk` and you define a label, Silk Central throws an error.

Adding Subversion Source Control Profiles

To create a Subversion source control profile:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Source Control** tab. The **Source Control** page opens, listing all of the source control profiles that have been created for the system.
3. Click **New Profile** to open the **New Source Control Profile** dialog box.
4. Type a **Name** for the new profile.

   This is the name that is displayed in lists where the profiles are available for selection.
5. Choose **Subversion** from the **Source control system** list box.
6. Type the URL of the Subversion **Repository** you want to access.

   If you do not know the URL of the repository, consult your Subversion administrator.

Note: To use SSH, add *ssh* to the URL, for example `svn+ssh://<hostname>:<port>`.

7. Type a valid **Username** and **Password**.

   These credentials will be used to access your repository.
8. Type a valid **SSH username** and **SSH password** or **SSH keyfile**.

   These credentials are used to access the SSH server. The password overrides the keyfile, so if you only have a keyfile, leave the **SSH password** text box empty. If you use a keyfile, the path to the keyfile must be valid on every execution server that uses the source control profile.
9. Type the **Working folder** to which the Silk Central execution server should copy the source files.

   The working folder must be a local path. For example, `C:\TempSources\`.
10. Type the **Project path** you want this profile to use. Click **Browse** to display the **Select Project Path** dialog box. The **Select Project Path** dialog box opens. Select the desired project path in the tree view and click **OK**. Leaving this text box empty sets the project path to the root directory.
11. Click **OK**.

    Silk Central attempts a trial connection to the external system using the information you have provided.

    Note: If an error occurs, please review the information that you have supplied, or consult your administrator.

If the trial connection is successful, you are returned to the **Source Control** page.

Editing Subversion Source Control Profiles

To modify a Subversion source control profile:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Source Control** tab. The **Source Control** page opens, listing all of the source control profiles that have been created for the system.
3. Click on the name of the source control profile that you want to modify. The **Edit Source Control Profile** dialog box opens.
4. Edit the **Name** of the profile.

   This is the name that is displayed in lists where profiles are available for selection.
5. Edit the **URL** of the Subversion repository you want to access.

   If you do not know the URL of the repository, please consult your Subversion administrator.

   Note: If you cannot check out files, when editing the URL of the Subversion **Repository**, delete the source control mirrors directory on your execution server. For example, `C:\ProgramData\SilkCentral\SrcCtrlMirrors`.

   Note: To use SSH, add *ssh* to the URL, for example `svn+ssh://<hostname>:<port>`.
6. Edit the **Username** and **Password**.

   These credentials are used to access your repository.
7. Type a valid **SSH username** and **SSH password** or **SSH keyfile**.

   These credentials are used to access the SSH server. The password overrides the keyfile, so if you only have a keyfile, leave the **SSH password** text box empty. If you use a keyfile, the path to the keyfile must be valid on every execution server that uses the source control profile.
8. Edit the **Working folder** to which the Silk Central execution server copies the source files.

   The working folder must be a local path. For example, `C:\TempSources\`.
9. Edit the **Project path** you want this profile to use.

10. Click **OK**.

    Silk Central attempts a trial connection to the external system using the information you have provided.

    Note: If an error occurs, please review the information that you have supplied, or consult your administrator.

If the trial connection is successful, you are returned to the **Source Control** page.

TestPartner

This section describes how to configure TestPartner source control profiles.

TestPartner is a Micro Focus product that tests Web- and Microsoft Windows-based applications that use Microsoft technologies. TestPartner records user actions to quickly produce powerful tests. Each recorded test displays as a series of actions in clear, concise steps that can be easily understood by all testers, from novice to expert. You can record user sessions with the application, add validation functions, and replay the sessions later to ensure that the application works as expected.

Note: To add a TestPartner source control profile, the TestPartner client needs to be installed on every execution server on which you want to use the source control profile.

Adding TestPartner Source Control Profiles

To create a TestPartner source control profile:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Source Control** tab. The **Source Control** page opens, listing all of the source control profiles that have been created for the system.
3. Click **New Profile** to open the **New Source Control Profile** dialog box.
4. Type a **Name** for the new profile.

   This is the name that is displayed in lists where the profiles are available for selection.
5. Select **TestPartner** from the **Source control system** list box.

   Note: When connecting to a TestPartner Oracle database, there is a TestPartner requirement that the TNS name must be the same as the host server name.
6. Select a database type from the **Database type** list box, either SQL Server or Oracle.
7. Type the name of the database server in the **Database server** text box.
8. Type the name of the database in the **Database name** text box.
9. Type the port number of the database server in the **Database port** text box.
10. Type the database schema or owner name in the **Database schema/owner name** text box.
11. Type the name of the database user in the **Database user** text box.
12. Type the password for the database user in the **Database password** text box.
13. Type a valid **Username** and **Password**.

    These credentials will be used to access your repository.
14. Type the **Working folder** to which the Silk Central execution server should copy the source files.

    The working folder must be a local path. For example, `C:\TempSources\`.
15. Use the **Project path** text box to filter which scripts from the database are available to use as tests. Click **Browse** to display the **Select Project Path** dialog box.

    The **Select Project Path** dialog box provides a tree of three levels that you can choose from:

First level	The entire TestPartner database. Note that if you select this level, the **Project path** text box will remain blank.
Second level	The TestPartner project.
Third level	The script type within a specified TestPartner project.

Select one of the preceeding options and click **OK**. The path will be added to the **Project Path** text box.

16. Click **OK**.

Editing TestPartner Source Control Profiles

To modify a TestPartner source control profile:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Source Control** tab. The **Source Control** page opens, listing all of the source control profiles that have been created for the system.
3. Click on the name of the source control profile that you want to modify. The **Edit Source Control Profile** dialog box opens.
4. Edit the **Name** of the profile.

   This is the name that is displayed in lists where profiles are available for selection.
5. Choose from the following options:
   - Edit the TestPartner **Database type**.
   - Edit the TestPartner **Database server**.
   - Edit the TestPartner **Database name**.
   - Edit the TestPartner number of the TestPartner database server.
   - Edit the TestPartner **Database schema/owner name**.
   - Edit the TestPartner **Database user**.
   - Edit the TestPartner **Database password**.
6. Edit the **Username** and **Password**.

   These credentials are used to access your repository.
7. Edit the **Project path** you want this profile to use.
8. Edit the **Working folder** to which the Silk Central execution server copies the source files.

   The working folder must be a local path. For example, `C:\TempSources\`.
9. Click **OK**.

Universal Naming Convention

This section describes how to configure Universal Naming Convention (UNC) source control profiles.

Short for Universal Naming Convention or Uniform Naming Convention, UNC is a PC format for specifying the location of resources on a local-area network (LAN). UNC uses the following format: `\\server-name \shared-resource-pathname`.

For example, to access the file `test.txt` in the directory `examples` on the shared server `silo`, you would write: `\\silo\examples\test.txt`.

You can also use UNC to identify shared peripheral devices, such as printers. The idea behind UNC is to provide a format so that each shared resource can be identified with a unique address.

UNC is only supported on Microsoft Windows operating systems. If you plan to use a non-windows execution server you can use the Apache Commons VFS source control profile instead.

Adding UNC Source Control Profiles

To create a UNC source control profile:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Source Control** tab. The **Source Control** page opens, listing all of the source control profiles that have been created for the system.
3. Click **New Profile** to open the **New Source Control Profile** dialog box.
4. Type a **Name** for the new profile.

   This is the name that is displayed in lists where the profiles are available for selection.
5. Select **UNC** from the **Source control system** list box.
6. Type the **UNC path** that you want to access.

   This is the path to the location where your test sources are located.
7. Type the **Working folder** to which the Silk Central execution server should copy the source files.

   The working folder must be a local path. For example, `C:\TempSources\`.
8. Type a valid **UNC username** and **UNC password**.

   These credentials are required to access the UNC path of the configuration file.
9. Click **OK**.

   Silk Central attempts a trial connection to the external system using the information you have provided.

   Note: If an error occurs, please review the information that you have supplied, or consult your administrator.

If the trial connection is successful, you are returned to the **Source Control** page.

Editing UNC Source Control Profiles

To modify a UNC source control profile:

1. In the menu, click **Project:<Project Name>** > **Project Settings** .

   Note: If you have not selected a project, a warning message opens, asking you to select a project. Select the project for which you want to define the setting.
2. Click the **Source Control** tab. The **Source Control** page opens, listing all of the source control profiles that have been created for the system.
3. Click on the name of the source control profile that you want to modify. The **Edit Source Control Profile** dialog box opens.
4. Edit the **Name** of the profile.

   This is the name that is displayed in lists where profiles are available for selection.
5. Edit the **UNC path**.

   This is the path to where your test sources are located.
6. Edit the **Working folder** to which the Silk Central execution server copies the source files.

   The working folder must be a local path. For example, `C:\TempSources\`.
7. Edit the **UNC username** and **UNC password**.

   These credentials are required to access your configuration file's UNC path.
8. Click **OK**.

   Silk Central attempts a trial connection to the external system using the information you have provided.

Note: If an error occurs, please review the information that you have supplied, or consult your administrator.

If the trial connection is successful, you are returned to the **Source Control** page.

Test Automation Tools

JUnit Integration

The topics in this section describe the integration between JUnit and Silk Central. You can use the JUnit test type to create Silk4J tests.

Configuring JUnit Test Properties

To configure the properties of a test, you must first follow the steps described in *Creating Tests* or *Editing Tests*.

To configure JUnit test properties:

1. On the **New Test** dialog box, select **JUnit Test** from the **Type** list box and then click **Next**.

   The **JUnit Test Properties** dialog box opens.
2. In the **Test class** field, type the fully qualified name of the JUnit test class. If the field is left blank, all tests in the classpath will be executed.
3. *Optional:* In the **Test method** field, type the name of the appropriate test method.

   The method must be available in the test class. If the **Test method** field is left blank, all tests that are included in the suite will be executed.
4. *Optional:* Set the **Java home directory** to the installation path of the Java Runtime Environment (JRE).

   The path must be valid on the execution server on which the test runs.

   Note: JUnit tests can be executed in JRE 1.5 and newer. If you use an older JRE, messages containing `java.lang.UnsupportedClassVersionError` or `Unrecognized option: -javaagent` will display in the **Messages** tab.
5. Specify a valid Java **Classpath** to use on the execution server.

   We recommend to use a relative classpath. The relative classpath is then expanded to the full classpath on the execution server. By using a relative classpath, changes on the location of the source control profile do not require additional changes to the classpath.

   The relative classpath must point to the root node of the test container containing the JUnit test, for example `JUnit_tests`. The relative classpath on the execution server is then expanded to include the working folder of the source control profile, for example `C:\temp`, and the test file names, for example `JUnit4Test.jar`.

   You can also use a fully qualified classpath. The fully qualified classpath must point to the archive or folder in which the test classes reside. Further, `junit.jar` must be added to the classpath, with the appropriate JUnit version, as the following examples show:

   - `C:\MyApps\main.jar;C:\MyApps\utils.jar`
   - `${apps_home}\main.jar;${apps_home}\utils.jar`
6. *Optional:* In the **JVM options** field, you can specify the command-line options and environmental variables that can affect the performance characteristics of the JVM. You can specify multiple options, but you have to type them in the right order. For example, to use the client VM and set the maximum size of the heap to 512MB, type `-client -Xmx512m`.
7. *Optional:* In the **Coverage path** field, type the JAR libraries or the specific class files to monitor for code coverage information.

We recommend using the relative coverage path from the test container root node, which is then expanded on the execution server. You can also use a fully qualified path. Use semicolons to separate multiple jar files, as the following examples show:

- `C:\MyApps\main.jar;C:\MyApps\utils.jar`
- `${apps_home}\main.jar;${apps_home}\utils.jar`

Note: The coverage path setting is disregarded if the **Record external AUT Coverage** check box is checked.

8. Check the **Record external AUT Coverage** check box to get code coverage for the application under test that is defined for the execution plan in the **Code Analysis Settings** portion of **Silk Central** > **Execution Planning** > **Code Analysis** .

   If the check box is not checked, code coverage is recorded from the executing virtual machine. By default, the check box is not checked.
9. Click **Finish**.

Note: Parameters are passed to the Java process as system properties, for example `-Dhost_under_test=10.5.2.133`. Use the `System.getProperty()` method to access the system properties. For example, to access the previously passed `host_under_test`, use `System.getProperty("host_under_test");`.

Accessing Silk Central Parameters through Java System Properties

Any JUnit test class can access a test parameter of the underlying test as a Java system property; the launcher passes these parameters to the executing machine using the "-D" VM argument.

In addition to the customer-defined parameters , you can always call the following Java system properties from a JUnit test:

Parameter	Description
#sctm_execdef_name	The name of the execution plan that is currently executed. If the execution was triggered from the **Tests** area, the parameter has the value `Unassigned Tests`.
#sctm_execdef_id	The numeric identifier (database key) of the execution plan that is currently executed.
#sctm_product	The name of the product as defined in the executed test container.
#sctm_version	The name of the version to which the results of the execution are associated.
#sctm_build	The name of the version to which the results of the execution are associated.
#sctm_keywords	A comma separated list which contains the keywords that are defined for this execution plan.
#sctm_test_results_dir	The path of the directory where the result files of the test reside.
#sctm_test_name	The name of the Silk Central test being executed.
#sctm_test_id	The numeric identifier (database key) of the test being executed.

MSTest Integration

The topic in this section describes the integration between MSTest and Silk Central. You can use the MSTest test type to execute MSTest tests.

Configuring MSTest Properties

To configure the properties of a test, you must first follow the steps described in *Creating Tests* or *Editing Tests*.

Note: The MSTest plugin supports the test type unit tests only. Results of other test types are ignored.

To configure MSTest properties:

1. On the **New Test** dialog box, select **MSTest Test** from the **Type** list.
2. Click **Next**. The **MSTest Test Properties** dialog box appears.
3. You can run a test container, a test list, a test class, or a single test method:
   - To run a test container, click **Browse** next to the **Test file** field and select a `.dll` file. You can constrain the run by typing in just a **Test class** or both a **Test class** and a **Test method**.
   - To run a test list, click **Browse** next to the **Test file** field and select a `.vsmdi` file (Visual Studio Test Meta Data). Type a name in the **Test list name** field. You can constrain the run by typing in both a **Test class** and a **Test method**.
4. Click **Finish**.

Note: To run MSTest on an execution server, a Visual Studio distribution or the Visual Studio Test Agent have to be installed. Add the folder that contains `MSTest.exe` to your path variable and restart the execution server. The default path is: `C:\Program Files (x86)\Microsoft Visual Studio <version>\Common7\IDE`. Currently MSTest distributed with Microsoft Visual Studio/ Visual Studio Test Agent 2010, 2012, 2013 is supported.

NUnit Integration

The topics in this section describe the integration between NUnit and Silk Central. You can use the NUnit test type to create Silk4NET tests.

Configuring NUnit Test Properties

To configure the properties of a test, you must first follow the steps described in *Creating Tests* or *Editing Tests*.

Note: We recommend that you add the `.\bin` folder of your NUnit installation to the system path. Click **Start** > **Control Panel** > **System** > **Advanced** > **Environment Variables** to add a path like `C:\Program Files\NUnit 2.2\bin` to the system environment variable PATH.

To configure NUnit test properties:

1. On the **New Test** dialog box, select **NUnit Test** from the **Type** list box and then click **Next**.

   The **NUnit Properties** dialog box displays.
2. Click **Browse** to locate and select the NUnit assembly from which you want to pull a test.
3. Type the working directory in the **NUnit Directory** text box.

   This directory is the local path to the file `nunit-console.exe`, such as `C:\Program Files\NUnit 2.2\bin`.
4. In the **NUnit Options** text box, type one or more NUnit console command-line options to specify how NUnit tests are specified.

   For example, to define that the `Flex4TestApp` NUnit test, located in `SilkTest.Ntf.Test.Flex`, should be executed, set the fixture option as follows:

   ```
   /fixture:SilkTest.Flex.Flex4TestApp
   ```

   Note: When you add multiple options, you have to separate the options by writing one option in each line in the text box.
5. Click **Finish**.

Process Executor Integration

The topics in this section describe the integration between process executor and Silk Central.

The process executor can be used to launch any executable and extends the published process test launcher class.

Configuring Process Executor Test Properties

To configure the properties of a test, you must first follow the steps described in *Creating Tests* or *Editing Tests*.

To configure process executor test properties:

1. On the **New Test** dialog box, select **ProcessExecutor Test** from the **Type** list box and then click **Next**. The **ProcessExecutor Test Properties** dialog box opens.
2. In the **Executable Name** text box, type the fully qualified name of the executable.
3. In the **Argument List** text box, type all arguments of the process executor test method.

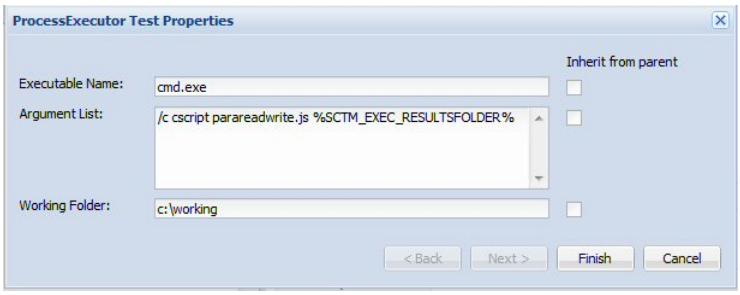
   Note: Multiple arguments must be on separate lines in the text box.
4. Set the **Working Folder**. This is the folder where the executable is executed.

During execution of the executable the following two environment variables can be used:

Environment Variable	Description
SCTM_EXEC_RESULTSFOLDER	All files in this folder are saved as result files in Silk Central. If an `output.xml` file is created during execution in this directory, it is processed by Silk Central.
SCTM_EXEC_SOURCESFOLDER	This is the folder where all source files used during the execution are located.

Example

The following example contains a ProcessExecutor test type that runs the Windows Script Host from the command line with the `/c` switch and two parameters:



- `/c` - command that specifies that the command line should terminate after execution.
- `cscript` - Windows Script Host.
- `parareadwrite.js` - the jscript file named `parareadwrite.js`
- `%SCTM_EXEC_RESULTSFOLDER%` - the Silk Central variable that contains the location of the `Result` folder on the execution server machine. Files stored in this location are automatically uploaded to Silk Central and available in the **Files** tab of the **Test Run**. In this example, the `parareadwrite.js` script produces an `output.xml` file that is written to the `Result` folder and uploaded back to Silk Central.

Silk Performer Integration

The topics in this section describe the integration between Silk Performer and Silk Central.

Configuring Silk Performer Test Properties

To configure the properties of a test, you must first follow the steps described in *Creating Tests* or *Editing Tests*.

To configure Silk Performer test properties:

1. On the **New Test** dialog box, select **Silk Performer Test** from the **Type** list and click **Next**.

   The **Test Properties - Select Project** dialog box opens.
2. Click **Browse** to select a Silk Performer project that has been saved to your file system and click **Next**.
3. On the **Test Properties - Select Workload** dialog box, select one of the workload profiles that has been defined for the project from the **Workload** list.
4. Click **Finish** to create the test case.

   Silk Central is fully integrated with Silk Performer.

Working with Silk Performer Projects

Silk Performer is fully integrated with the test and execution functionality of Silk Central. Silk Performer projects can be integrated into Silk Central tests and directly executed through Silk Central. This allows for powerful test-result analysis and reporting. It also enables unattended testing, which means tests are run automatically by Silk Central based on pre-configured schedules.

Refer to the Silk Performer Help for details on configuring the integration of Silk Performer with Silk Central.

Silk Performer project files can be directly opened in Silk Performer from Silk Central, where scripts and settings can be edited. Edited Silk Performer projects can subsequently be checked back into Silk Central to make them available for future test executions.

Silk Central provides information on execution plan run properties during Silk Performer test executions. Use the `AttributeGet` methods to access execution plan run properties in the Silk Performer script. You can access the following properties in the script:

- `#sctm_execdef_name`
- `#sctm_execdef_id`
- `#sctm_product`
- `#sctm_version`
- `#sctm_build`
- `#sctm_keywords`
- `#sctm_test_results_dir`
- `#sctm_test_name`
- `#sctm_test_id`

Note: The term Project is used differently in Silk Performer than it is in Silk Central. A Silk Performer project, when uploaded to Silk Central, becomes the core element of a Silk Central test. Silk Central projects are high-level entities that may include multiple Silk Performer projects, tests, execution plans, and requirements.

Downloading Silk Performer Projects

Whereas opening a Silk Performer project may involve checking out a Silk Performer project from a source-control tool, editing the project in Silk Performer, and checking the project back into Silk Central,

downloading a project involves downloading a copy of a project and working with it independently of Silk Central. Changes you make to downloaded projects are not automatically migrated back to Silk Central.

To download a Silk Performer project:

1. In the menu, click **Tests** > **Details View** .
2. In the **Tests** tree, select a Silk Performer test.
3. Click the **Properties** tab.
4. Scroll down to the **Silk Performer Test Properties** section.
5. Click . A file download dialog box displays, asking you to confirm that you wish to download the specified Silk Performer project to your local system.
6. Click **Save** to open the file in Silk Performer. If not already open in the background, Silk Performer is invoked.
7. The **Select Target Directory** dialog box displays, loaded with the default directory path to which the specified Silk Performer project will be saved. If you approve of the specified pathname, click **OK**, otherwise click **Browse** to specify an alternate path.

   Note: Even if you have configured source-control integration, you will not be prompted to check out the Silk Performer project from your source-control system because you are working with this file independently of Silk Central.

   Note: Silk Performer projects utilized by Silk Central can also be downloaded directly from the Silk Performer user interface. For additional information, refer to the Silk Performer documentation.

Opening Silk Performer Projects

To open a Silk Performer project from Silk Central:

1. In the menu, click **Tests** > **Details View** .
2. In the **Tests** tree, select a Silk Performer test.
3. Click the **Properties** tab.
4. Scroll down to the **Silk Performer Test Properties** section.
5. Click . A file download dialog box displays, asking you to confirm that you wish to open the specified Silk Performer command file (.spwbcmd) in Silk Performer.
6. Click **Open** to open the file in Silk Performer. If not already open in the background, Silk Performer is invoked. The **Select Target Directory** dialog box opens, loaded with the default directory path to which the specified Silk Performer project will be saved.
7. If you approve of the specifed pathname, click **OK**, otherwise click **Browse** to specify an alternate path.
8. If you have configured source-control integration for Silk Central, for example StarTeam, you are presented with a login screen for your source-control client. Enter valid user connection settings and click **OK** to continue.

   Note: Silk Performer projects utilized by Silk Central can also be opened directly from Silk Performer. For additional information, refer to the Silk Performer documentation.

Executing Attended Silk Performer Tests

Attended tests are Silk Performer tests that are executed manually in Silk Performer and are not executed automatically based on a pre-defined schedule in Silk Central.

Note: To use Silk Central's data-driven test functionality with Silk Performer scripts, data sources with column names matching the corresponding Silk Performer project attributes must be used in conjunction with `AttributeGet` methods (password attributes cannot be passed and will always use the values that are specified in the script).

To execute an attended test run in Silk Performer:

1. In the menu, click **Tests** > **Details View** .
2. In the **Tests** tree, select a Silk Performer test.
3. Click the **Properties** tab.
4. Scroll down to the **Silk Performer Test Properties** section.
5. Click . A file download dialog box displays, asking you to confirm that you wish to run the specified Silk Performer command file (.spwbcmd).
6. Click **Open** to open the project in Silk Performer. If not already open in the background, Silk Performer is invoked. The **Select Target Directory** dialog box displays, loaded with the default directory path to which the specified Silk Performer project will be saved.
7. If you approve of the specified pathname, click **OK**, otherwise click **Browse** to specify an alternate path. The **Silk Performer Workload Configuration** dialog box opens with all of the workload settings that are associated with the Silk Performer project.
8. Edit the workload settings as required and click **Run** to begin the test and monitor the test results with Silk Performer.

   Note: Clicking **Run** without editing any workload settings executes the Silk Performer test in exactly the same way as if the test had been executed directly from Silk Central as an unattended test.

Editing Silk Performer Test Properties

Note: To use the data-driven test functionality of Silk Central with Silk Performer scripts, you have to use data sources with column names that match the corresponding Silk Performer project attributes in conjunction with `AttributeGet` methods.

To edit Silk Performer test properties:

1. In the menu, click **Tests** > **Details View** .
2. In the **Tests** tree, select a Silk Performer test.
3. Click the **Properties** tab.
4. Scroll down to the **Silk Performer Test Properties** section.
5. Click **Edit Silk Performer Test Properties**.
6. Proceed with the configuration of your Silk Performer test.

Analyzing Silk Performer Test Results

Performance Explorer enables in-depth analysis of Silk Performer test results. The **Analyze Results** option downloads only selected results, in contrast to “Downloading result packages”. To assist you in analyzing the results of your optimization efforts, Performance Explorer even allows you to compare statistics from multiple test runs side-by-side in cross load-test reports.

The results of tests that are run using Silk Central can be automatically loaded into Performance Explorer through commands on the **Runs** page in the **Tests** area.

For full details on using Performance Explorer and integrating Performance Manager with Silk Central, refer to the Performance Explorer documentation.

To open Silk Performer test results in Performance Explorer:

1. In the menu, click **Tests** > **Details View** .
2. Select the test you are interested in viewing.
3. Click the **Runs** tab.
4. Click in the **Actions** column of the test execution for which you want to download results. A **File Download** dialog box displays, showing you the name of the Performance Explorer command file, `.sppecmd`, that you are about to download.

5. Click **Open** to open the results in Performance Explorer. Alternatively, you can click **Save** to save the results locally.
6. If not already open in the background, Performance Explorer now opens, connected directly to your Silk Central installation, and fetches the results of the selected execution run.

Note: To prepare for a cross load-test report that compares the results of multiple executions in a single report, you may download the results of additional executions from the **Runs** page. Additional execution results are displayed in the existing instance of Performance Explorer on the Performance Explorer Silk Central tab. For additional details on cross load-test reports, refer to the Performance Explorer documentation.

Downloading Silk Performer Test Result Packages

Downloading result packages is the ideal option if you want to analyze the complete results set of a test run, or if you want to download the complete results set for offline analysis. Because result packages often include large TrueLog On Error files, result packages can be compressed and downloaded to your local hard drive as `.lrz` files. Downloading results locally can also be useful when you are working from a slow Internet connection.

To download Silk Performer test results:

1. In the menu, click **Tests** > **Details View** .
2. In the **Tests** tree, select a Silk Performer test.
3. Click the **Runs** tab.
4. Click in the **Actions** column of the test execution for which you want to download results. A **File Download** dialog box displays, showing you the name of the compressed results package file, `.ltz` that you are about to download.
5. Click **Open** to open the results in Performance Explorer. Alternatively, you can click **Save** to save the results locally.
6. If not already open in the background, Performance Explorer now opens. You are presented with an **Import Project** dialog box that indicates the target directory to which the results will be saved. Click **OK** to accept the default path, or click **Browse** to select an alternate path. The downloaded results are then displayed in Performance Explorer.

Note: If you accept the default projects directory where result packages are typically stored, which we generally recommend, then the results will be stored with all otherSilk Performer results and will be readily accessible through the Performance Explorer `Add Loadtest Results` command.

Uploading Silk Performer Test Results

Once you have completed running an attended test in Silk Performer, you can upload the test results to Silk Central and associate the results with a test.

To upload results from an attended Silk Performer test:

1. Run an attended Silk Performer test.

   For additional information, see *Executing Attended Silk Performer Tests*.
2. When the test is complete, select **Upload Results to Silk Central** from the **Results** menu.

   The **Login** screen of the **Upload Results to Silk Central** wizard displays.
3. Enter your **Password** and click **Next**.

Note: Because this is an attended test, the wizard already knows the appropriate hostname and username of the test to which these results are to be uploaded.

4. If not already selected by default in the project list, select the Silk Central project to which you want to upload the Silk Performer results.
5. If not already selected by default in the tree list, select the test to which you want to upload the results. Click **Next**.

Note: You can right-click in the tree and use the commands on the context menu to create a new test, child test, test folder, or child test folder to which the results can be saved.

6. On the subsequent screen you can specify Version and Build numbers for the assigned Product to which the uploaded results belong. Also specify the Silk Performer test result status, for example `Passed`, `Failed`.

   Note: If any errors occurred during the test run, the test result status is set to `Failed` by default.

7. Click **Finish** to upload the results. The uploaded results are displayed in **Tests** > **Details View** > **<Silk Performer Test>** > **Runs**.

Performance Trend Reports

This section explains the performance trend reports that ship with Silk Central. Performance trend reports show the evolution of the application under test's performance over a specified period of time. The input data for the performance reports is provided by Silk Performer load tests.

Average Page-Time Trend Report

Shows the page times per page for all tests executed for the specified test within the specified time range. The performance trend of the page times for the tested pages is shown in a graph.

Input Parameters

The input parameters for an *Average Page-Time Trend* report are:

Parameter	Description
Date From (DD-MON-YYYY)	Starting date for the time range. For example `06-DEC-2008`.
Date To (DD-MON-YYYY)	End date for the time range. For example `16-JAN-2009`.
Exclude Runs with more than <nnn> Errors	Runs that generate more errors than specified here are not included in the report. Use this setting to avoid that outliers skew the trend curve.
Maximum Value for y-Axis	Limits the y-axis of the graph to the specified value. Transaction busy-times that exceed this value are cut off at the top. This setting is useful to prevent the flattening of lines caused by outliers.
Measure Filter	Shown measures are limited to those including the specified string in their name. This field has to be filled out. To display all available measures, set the measure filter to `%`. For example, to show only measures that include the word "unit" at any position in their names, set the measure filter to `%unit%`.
Test ID	Identifier of the test for which you want to view the report.

General Report Information

Lists overview information like the name of the current project, the report description, and the user who executed the report.

Test Information

Lists general information about the test.

Silk Performer Project Information

Lists general information about the Silk Performer project that is used to perform the load test.

Page Time Trend Information

The trend charts show the page time trend over the selected time range for all filtered measures. The minimum, maximum, and average page time curves are shown in each chart. The displayed values in each chart are cut at the selected maximum y-axis value.

Average Transaction Busy-Time Trend Report

Shows the transaction busy time per transaction for all tests executed for the specified test within the specified time range. The performance trends of the transaction busy-times for the tested transaction are displayed in trend charts.

Input Parameters

The input parameters for an *Average Transaction Busy-Time Trend* report are:

Parameter	Description
Date From (DD-MON-YYYY)	Starting date for the time range. For example `06-DEC-2008`.
Date To (DD-MON-YYYY)	End date for the time range. For example `16-JAN-2009`.
Exclude Runs with more than <nnn> Errors	Runs that generate more errors than specified here are not included in the report. Use this setting to avoid that outliers skew the trend curve.
Maximum Value for y-Axis	Limits the y-axis of the graph to the specified value. Transaction busy-times that exceed this value are cut off at the top. This setting is useful to prevent the flattening of lines caused by outliers.
Test ID	Identifier of the test for which you want to view the report.
Transaction Filter	Shown transactions are limited to those including the specified string in their name. This field has to be filled out. To display all available transactions, set the transaction filter to `%`. For example, to show only transactions that include the word "unit" at any position in their names, set the transaction filter to `%unit%`.

General Report Information

Lists overview information like the name of the current project, the report description, and the user who executed the report.

Test Information

Lists general information about the test.

Silk Performer Project Information

Lists general information about the Silk Performer project that is used to perform the load test.

Transaction Busy-Time Trend Information

The trend charts show the transaction busy-time trend over the selected time range for all filtered transactions. The minimum, maximum, and average transaction busy-time curves are shown in each chart. The displayed values in each chart are cut at the selected maximum y-axis value.

Custom Measure Trend Report

Shows the average, minimum, and maximum values of the defined measure or measures for all tests executed for the specified test within the specified time range. The performance trend of the values for each tested measure is shown in a graph.

Input Parameters

The input parameters for a *Custom Measure Trend* report are:

Parameter	Description
Date From (DD-MON-YYYY)	Starting date for the time range. For example `06-DEC-2008`.
Date To (DD-MON-YYYY)	End date for the time range. For example `16-JAN-2009`.
Exclude Runs with more than <nnn> Errors	Runs that generate more errors than specified here are not included in the report. Use this setting to avoid that outliers skew the trend curve.
Maximum Value for y-Axis	Limits the y-axis of the graph to the specified value. Measures that exceed this value are cut off at the top. This setting is useful to prevent the flattening of lines caused by outliers.
Measure Name	Name of the custom measure for which you want to view the report. For example *CreateTestDefinition*.
Measure Type	Type of the custom measure. For example `Transaction(BusyTime)[s]`.
Test ID	Identifier of the test for which you want to view the report.

General Report Information

Lists overview information like the name of the current project, the report description, and the user who executed the report.

Test Information

Lists general information about the test.

Silk Performer Project Information

Lists general information about the Silk Performer project that is used to perform the load test.

Custom Measure Trend Information

The trend chart shows the performance trend over the selected time range for the selected measure. The minimum, maximum, and average measure curves are shown in the chart. The displayed values in the chart are cut at the selected maximum y-axis value.

Overall Page-Time Trend Report

Shows overall page times, aggregated over all user types, for all tests executed for the specified test within the specified time range. The performance trend of the page times for the tested page is shown in a graph.

Input Parameters

The input parameters for an *Overall Page-Time Trend* report are:

Parameter	Description
Date From (DD-MON-YYYY)	Starting date for the time range. For example `06-DEC-2008`.
Date To (DD-MON-YYYY)	End date for the time range. For example `16-JAN-2009`.
Exclude Runs with more than <nnn> Errors	Runs that generate more errors than specified here are not included in the report. Use this setting to avoid that outliers skew the trend curve.
Maximum Value for y-Axis	Limits the y-axis of the graph to the specified value. Transaction busy-times that exceed this value are cut off at the top. This setting is useful to prevent the flattening of lines caused by outliers.
Test ID	Identifier of the test for which you want to view the report.

General Report Information

Lists overview information like the name of the current project, the report description, and the user who executed the report.

Test Information

Lists general information about the test.

Silk Performer Project Information

Lists general information about the Silk Performer project that is used to perform the load test.

Overall Page-Time Trend Information

The trend chart shows the overall page-time trend over the selected time range for all pages. The minimum, maximum, and average overall page-time curves are shown in the chart. The displayed values in the chart are cut at the selected maximum y-axis value.

Overall Transaction Busy-Time Trend Report

Shows overall transaction busy-time, aggregated over all user types, for all tests executed for the specified test within the specified time range. The performance trend of the transaction busy-times for the tested transaction is displayed in a trend chart.

Input Parameters

The input parameters for an *Overall Transaction Busy-Time Trend* report are:

Parameter	Description
Date From (DD-MON-YYYY)	Starting date for the time range. For example `06-DEC-2008`.
Date To (DD-MON-YYYY)	End date for the time range. For example `16-JAN-2009`.
Exclude Runs with more than <nnn> Errors	Runs that generate more errors than specified here are not included in the report. Use this setting to avoid that outliers skew the trend curve.
Maximum Value for y-Axis	Limits the y-axis of the graph to the specified value. Transaction busy-times that exceed this value are cut off at the top. This setting is useful to prevent the flattening of lines caused by outliers.
Test ID	Identifier of the test for which you want to view the report.

General Report Information

Lists overview information like the name of the current project, the report description, and the user who executed the report.

Test Information

Lists general information about the test.

Silk Performer Project Information

Lists general information about the Silk Performer project that is used to perform the load test.

Overall Transaction Busy-Time Trend Information

The trend chart shows the overall transaction busy-time trend over the selected time range for all transactions. The minimum, maximum, and average transaction busy-time curves are shown in the chart. The displayed values in the chart are cut at the selected maximum y-axis value.

Working with Silk Performance Explorer

Silk Performance Explorer (Performance Explorer) is used for in-depth analysis of test runs. Performance Explorer results analysis can be started directly from the **Execution** area and the **Tests** area of Silk Central through execution runs on the **Runs** page or from Performance Explorer itself. Refer to the Performance Explorer documentation for details regarding the integration of Performance Explorer with Silk Central.

The results of load-test runs in Silk Performer can also be uploaded to Silk Central and associated with tests. Refer to the *Silk Performer Help* for more details.

For additional information about the integration of Silk Central integration with Silk Performer, refer to the *Silk Performer Help* and the *Performance Explorer User Guide*.

Silk Test Workbench Integration

The topics in this section describe the integration between Silk Test Workbench and Silk Central.

Note: The Silk Test Workbench client needs to be installed on every execution server on which you want to run a Silk Test Workbench script. Before a test is executed for the first time on an execution server, the server process must run in elevated mode in order to create an ODBC data source and a new Workbench database configuration. To do so, stop the execution server and exit the Silk Central Service Manager. Then start process again with **Run As Administrator**.

Configuring Silk Test Workbench Test Properties

To configure the properties of a test, you must first follow the steps described in *Creating Tests* or *Editing Tests*.

To configure Silk Test Workbench test properties:

1. On the **Test Properties - Select Scripts** dialog box, select one or more scripts from the **Silk Test Workbench Test** list box.
2. In the **Playback Options** text box, type in the name of a predefined Silk Test Workbench playback option or leave the default value of `System Defaults`.

   Note: A playback option must be set for a Silk Test Workbench test. The delete option on a Silk Test Workbench test will reset the playback option to the default value of `System Defaults`.
3. Click **Finish**.

Opening Silk Test Workbench in the Context of the Result File

1. Click **Execution**.
2. Select your execution plan.
3. Click the **Runs** tab.
4. Click the **Run ID** hyperlink label. The **Test Run Results** dialog box opens.
5. Click the **Files** tab.
6. Click the `result.stwx` file to open Silk Test Workbench in context of the result file.

Note: Silk Test Workbench must be installed on the machine on which you are trying to open the file.

Viewing the Execution Result Files for a Visual Test

1. Click **Execution**.
2. Select your execution plan.
3. Click the **Runs** tab.
4. Click the **Run ID** hyperlink label.
5. The **Actions** column displays all icons and links for Silk Test Workbench:
   - `detail.htm` - Silk Test Workbench detailed steps file.
   - `result.stwx` - Click to open the result in Silk Test Workbench .
   - `error.png` - Click to go to a screen shot of the last error.

Test Parameters Page - Silk Test Workbench

Tests > **Details View** > **<Test Element>** > **Data Set**

When passing parameters from a Silk Central test to a Silk Test Workbench test, these parameters must be defined as input parameters in the Silk Test Workbench script and they must have the same name in Silk Central as in the script. The following data types should be used:

Silk Central	Silk Test Workbench
String	Text
Number	Number (Long)
Number	Number (Long Long)
Number	Enumeration
Float	Number (Double)
Boolean	Boolean (True/False)

Silk Test Classic Integration

The topics in this section describe the integration between Silk Test Classic and Silk Central.

Silk Test Classic Tests

This section describes how to execute tests in Silk Test Classic.

Adding a Silk Test Classic AUT Host

For execution plans that run Silk Test Classic tests, you may have a setup where the Silk Test Classic agent is on a different computer than the execution server. In this case, you can define the location of the Silk Test Classic agent, the Silk Test Classic AUT (Agent Under Test) Hostname.

To add a a Silk Test Classic AUT host to the selected execution plan or edit the host:

1. In the menu, click **Execution Planning** > **Details View**.
2. Select the execution plan to which you want to assign the Silk Test Classic AUT host.
3. Click the **Deployment** tab.
4. In the **Silk Test Classic AUT Hostname** section, click **Edit**. The **Edit Silk Test Classic AUT Hostname** dialog box displays.
5. In the **Hostname** text box, type the name of the computer where the Silk Test Classic agent runs.

   Proper configuration of option files is required. For details on the command-line option `-m`, refer to the Silk Test Classic documentation.
6. Click **OK** to add the Silk Test Classic AUT host to the selected execution plan.

Automated Execution of Silk Test Classic Tests

All tests within an execution plan use the same Silk Test Classic instance for tests. The Silk Test Classic GUI is opened once with the first Silk Test Classic test execution and is closed automatically after the last Silk Test Classic test execution. Each Silk Test Classic test execution produces its own results. If for any reason the Silk Test Classic GUI closes during a test, it will reopen automatically with the next Silk Test Classic test execution.

Automated Execution of Data-Driven Silk Test Classic Testcases

If the **data driven** check box is checked in Silk Test Classic test properties, each Silk Test Classic test will be repeated once for each data row in the external datasource. By default, plan-based execution mode is used for data driven tests. This means that the results of all data rows will be listed under a single node in the `.res` result file. If execution mode is switched to script-based data driven in `SccExecServerBootConf.xml`, a result node will be created in the `.res` result file for each data row.

Specifying Agent Under Test (AUT)

When a Silk Test Classic agent cannot run on the same machine as the Silk Central execution server, for example when tests are run on platforms other than Windows, the hostname and port may be specified by the Silk Test Classic AUT Hostname setting in the **Deployment** page of an execution plan. If the setting has not been defined, Silk Test Classic default values are used, for example from `partner.ini`. The syntax for AUT is `hostname:port`. The agent must be started manually prior to test execution and configured to listen at the specified port. By default, the TCP/IP protocol is used for communication between Silk Test Classic instances and Silk Test Classic agents. Ensure that both programs have been configured to use the same protocol.

Note: Be careful when you have multiple execution servers assigned to an execution plan as Silk Test Classic agents can only work with one Silk Test Classic instance at a time.

Silk Test Classic Time-out Settings

If you have Silk Test Classic test cases that require more than 1 hour to complete, you must adjust the time-out settings in Silk Central. Otherwise, Silk Central assumes that something has gone wrong in the execution and terminates Silk Test Classic. For details about setting the Silk Test Classic time-out, see the *Administration* topics in this Help.

Silk Test Classic Logs

The RMS log file in Silk Test Classic is used to log data for each test case as test runs progress. Three types of data records are written to this file: status, memory and user records. By monitoring this file, the RMS Remote Agent has a means of determining the progress of each test run.

You can write your own comments into the user records of the log file by executing the `PrintToRMSLog` 4Test function.

Examples:

```
PrintToRMSLog ("Error", "An intended error")
PrintToRMSLog ("Info", "testcase sleep1 started")
PrintToRMSLog ("Warning", "TestCase 1 started a second time")
```

Definition of user function in `rms.inc`:

```
PrintToRMSLog (STRING sMessageType, STRING sUserMessage)
```

Writes to the log file in the following format:

```
U|{sTestCaseName}|{sScriptName}|{sArgStr}|{sUserMessage}|{sMessageType}
```

TestPartner Integration

The topics in this section describe the integration between TestPartner and Silk Central.

Configuring TestPartner Test Properties

To configure the properties of a test, you must first follow the steps described in *Creating Tests* or *Editing Tests*.

To configure TestPartner test properties:

1. On the **New Test** dialog box, select **TestPartner Test** from the **Type** list box.
2. Click **Next**. The **Test Properties - Select Test Script** dialog box opens.
3. Click **Browse**.

   The **Choose File** dialog box opens. The assets available in this dialog box are based on the **Project Path** defined in the associated TestPartner source control profile.
4. Select a script from the list and click **OK**.

   Note: To add multiple TestPartner tests, see *Adding Multiple TestPartner Tests*.
5. In the **Playback Options** text box, type in the name of a predefined TestPartner playback option or leave the default value of `System Defaults`.
6. Click **Finish**.

Executing a TestPartner script on a 64-bit machine

1. Download `sqlncli_x64.msi` from *http://www.microsoft.com/downloads/en/details.aspx?familyid=d09c1d60-a13c-4479-9b91-9e8b9d835cdc&displaylang=en*.
2. Install `sqlncli_x64.msi` on the 64-bit box.
3. Go to `C:\Windows\SysWOW64`.
4. Find and Launch `odbcad32.exe` from this directory.
5. Under the **System DSN** tab, verify that the SQL Native Client driver version 2005.90.1399.00 is installed.

Adding Multiple TestPartner Tests

To add multiple TestPartner tests, you must first follow the steps described in *Creating Tests*.

To add multiple TestPartner tests:

1. On the **New Test** dialog box, select **TestPartner Test** from the **Type** list box.
2. Click **Next**. The **Test Properties - Select Test Script** dialog box opens.
3. Click **Browse**.

   The **Choose File** dialog box opens. The assets available in this dialog box are based on the **Project Path** defined in the associated TestPartner source control profile.

4. In the **Playback Options** text box, type in the name of a predefined TestPartner playback option or leave the default value of `System Defaults`.

   Note: The import gives the defined playback option to all imported scripts. If you need to change the playback option for any scripts, edit the test after the import.

5. Click **Next**.

   The **Test Properties - Select Scripts** dialog box opens.

6. In the **TestPartner Scripts** text box, select the scripts to import by clicking `CTRL + Click`.
7. Click **Finish**.

Windows Script Host Tests

Windows Script Host (WSH) is part of the Windows platform and creates an environment for hosting scripts. When a script is to be run at the execution server, WSH plays the role of host. It makes objects and services available for the script and provides a set of guidelines within which the script is executed. Among other things, WSH manages security and invokes the appropriate script engine.

The following online WSH resources might be of value to you:

- *http://labmice.techtarget.com/scripting/WSH.htm*
- *http://www.winguides.com/links.php?guide=scripting*
- Downloadable Script Interpreters: *http://aspn.activestate.com/ASPN/*

Configuring Windows Scripting Test Properties

To configure the properties of a test, you must first follow the steps described in *Creating Tests* or *Editing Tests*.

To configure Windows scripting test properties:

1. On the **New Test** dialog box, select **Windows Scripting Test** from the **Type** list box and then click **Next**.

   The **Windows Scripting Properties** dialog box opens.

2. Click **Browse** and select a Windows scripting test script.
3. Specify the location of any required additional parameters in the **Switches** text box.

   Note: You may add other switches to be passed to the script. For more details on the switches that can be used, see *Windows Script Host Tests* and refer to the MS Scripting Host documentation.

4. Click **Finish**.

Supported Script Languages

WSH is language-independent for WSH-compliant scripting engines. Natively, the Windows platform supports Visual Basic Scripts, with file extension `.vbs`, and scripts written in the Java Script language, with file extension `.js`.

For other scripting languages, a dedicated script interpreter must be installed on the execution server. For example, if you install a Perl interpreter on an execution server, this will register a Perl scripting engine at the WSH environment for the extension `.pls`. Whenever a file with extension `.pls` is passed to the WSH tool, with the executable `cscript.exe`, it will invoke the appropriate interpreter because of the file extension. So the client of WSH, in this case the Silk Central Execution Server, does not need to know about the installation of the Perl interpreter.

Note: After installing a script interpreter, for example Active Perl, try to execute a script locally on the execution server by calling the WSH command line tool with a sample script before executing the script in Silk Central. To do so, open a command shell on the execution server and type `cscript`

<somescript>, where <somescript> is the path to a script of your choice that is available on your execution server. This is exactly what Silk Central will call when executing a WSH test on an execution server. If the script is executed, then the scripting engine has been registered successfully.

The following scripting languages are WSH compatible:

Scripting Language	File Extension
Perl	`.pls`
Python	`.py`, `.pyw`
REXX	`.REXX`
TCL	`.tcl`

WSH Test Properties

Property	Description	
Script	You can define any file where a script engine is registered for the script language the file contains. Script files under source control are deployed automatically to execution servers, comparable to test sources for other test types.	
Switches	You can enter and pass the following settings to `cscript.exe` during the execution of the test:	
	//B	Batch mode suppresses all non-command-line console UI requests from the script. We recommended that you use this option to prevent a script from waiting for user input during unattended executions at the execution server.
	//U	We recommend to that you use unicode for redirected I/O from the console.
	//T:nn	Time-out, in seconds. The maximum time the script can run, by default = no limit. This option is used to prevent excessive execution of scripts. It sets a timer. When execution time exceeds the specified value, Cscript interrupts the script engine using the `IActiveScript::InterruptThread` method and terminates the process. There is a callback hook. If the time-out is invoked, the `OnTimeOut` function is called to permit cleanup. Although it is possible to create infinite loops using this feature, it is more useful than harmful.
	//logo	Displays an execution banner at execution time that is visible at the beginning of the `log.txt` log file. This is the default setting.
	//nologo	Prevents display of the execution banner at execution time.
	//D	Enables active debugging.
	//E:engine	Use the engine to execute a script.
	//Job:xxxx	Execute a WSF job.
	//X	Execute the script in debugger.

Using Parameters in WSH Tests

Parameters that are defined for a WSH test automatically add a name and value pair to the command line as an additional argument and set the parameters as environment variables for the called process. This functionality allows you to access all parameters defined for your test within the WSH script.

For example a WSH test is defined with `myscript.js` as script and `//B` as switch. Additionally the test requires a parameter called `IPAddress` with the value `192.168.1.5` and another parameter called `Port` with the value `1492`. The resulting command line for the WSH execution in this example is:

```
csript myscript.js //B IPAddress=192.168.1.5 Port=1492
```

Viewing Information Returned from WSH

To collect results of a WSH execution, the WSH script must generate a file called `output.xml` in the current working directory of the WSH test. All files residing in this directory are stored in the database and are downloadable through the list of files for the test execution. Files are excluded from storage when their extensions are defined under the file extensions to ignore in results property in the **Projects** area.

Note: The current working directory is dynamically created for each WSH execution. Do not use an absolute path when creating the file. Any relative path used will correctly refer to the current working directory.

Any information that a script writes to the WSH standard output goes into the `log.txt` text file that resides in the current working directory. This file is stored in the database and can be viewed as it is included in the file list of the test execution.

The following example shows how to print log information from a script:

```
WScript.Echo "This info will be written to the log.txt file"
```

The XML structure of `output.xml` begins with an element *ResultElement* that defines an attribute named *TestItem*, which specifies the name of the *ResultElement*.

The *ResultElement* must contain an element named *ErrorCount*, optionally an element named *WarningCount*, and a list of Incident elements.

The *ErrorCount* and *WarningCount* elements must contain a positive number or zero. The *ErrorCount* and *WarningCount* of the top-level *ResultElement* are used for evaluating success conditions, which determine if a test has passed or failed. The XML file might contain additional elements that are not visible in the Silk Central GUI. The `output.xml` file is however stored in the database and is viewable as it is included in the file list of the executed test.

The *Incident* element represents an event that happened during the execution of the WSH test. *Message* and *Severity* are shown in the messages list of test executions in the Silk Central GUI. An *Incident* element must contain a *Message* and a *Severity* element.

The *Severity* element must hold one of the following values:

- Info
- Warning
- Error (or Exception)
- Failure

You can store additional information in the result file. The *ResultElement* may contain any number of sub-ResultElements, so information can be easily grouped. Sub-ResultElements make the result file easier to read. For compatibility reasons related to unit tests, JUnit and NUnit, ResultElement can be named TestSuite or Test.

The *ResultElement* may contain the following additional elements:

- *FailureCount*, which is treated the same way as error count
- *RunCount*, if a test is run multiple times
- *Timer*, for example for the duration of the test
- *WasSuccess*, for compatibility with NUnit result files
- *Asserts*, for compatibility with NUnit result files

The *Incident* element may contain a list of *Detail* elements.

The *Detail* element represents detailed information about an *Incident*. It must define a *TestName* element and an *Info* element. The *TestName* is used to give detailed information about where the *Incident* happened. The *Info* element holds detailed information about the *Incident*, for example a stack trace.

Note: Up through Silk Central 8.1, the value of the *Message* and *Info* elements had to be URL encoded (ISO-8859-1). Since version 8.1.1, URL encoding is no longer allowed.

Sample Result File

```
<ResultElement TestItem="WshOutputTest">
  <ErrorCount>1</ErrorCount>
  <WarningCount>1</WarningCount>
  <Incident>
    <Message>some unexpected result</Message>
    <Severity>Error</Severity>
    <Detail>
      <TestName>function main()</TestName>
      <Info>some additional info; eg. stacktrace</Info>
    </Detail>
  </Incident>
  <Incident>
    <Message>some warning message</Message>
    <Severity>Warning</Severity>
    <Detail>
      <TestName>function main()</TestName>
      <Info>some additional info; eg. stacktrace</Info>
    </Detail>
  </Incident>
</ResultElement>
```

Java Script Sample

The following script was used to generate the sample result file. To try this script save it with the extension `.js`.

```
function dumpOutput(dumpFile)
{
  dumpFile.WriteLine("<ResultElement TestItem=\"WshOutputTest
\">");
  dumpFile.WriteLine("  <ErrorCount>1</ErrorCount>");
  dumpFile.WriteLine("  <WarningCount>1</WarningCount>");
    dumpFile.WriteLine("  <Incident>");
    dumpFile.WriteLine("    <Message>some unexpected result</
Message>");
    dumpFile.WriteLine("    <Severity>Error</Severity>");
    dumpFile.WriteLine("    <Detail>");
    dumpFile.WriteLine("      <TestName>function main()</
TestName>");
    dumpFile.WriteLine("      <Info>some additional info; eg.
stacktrace</Info>");
    dumpFile.WriteLine("    </Detail>");
    dumpFile.WriteLine("  </Incident>");
    dumpFile.WriteLine("  <Incident>");
    dumpFile.WriteLine("    <Message>some warning message</
Message>");
    dumpFile.WriteLine("    <Severity>Warning</Severity>");
    dumpFile.WriteLine("    <Detail>");
    dumpFile.WriteLine("      <TestName>function main()</
TestName>");
    dumpFile.WriteLine("      <Info>some additional info; eg.
stacktrace</Info>");
    dumpFile.WriteLine("    </Detail>");
    dumpFile.WriteLine("  </Incident>");
  dumpFile.WriteLine("</ResultElement>");
}
```

```
function main()
{
  var outFile;
  var fso;
  fso = WScript.CreateObject("Scripting.FileSystemObject");
  outFile = fso.CreateTextFile("output.xml", true, true);
  outFile.WriteLine("<?xml version=\"1.0\" encoding=\"UTF-16\"?
>");

  dumpOutput(outFile);
  outFile.Close();
  WScript.Echo("Test is completed");
}

main();
WScript.Quit(0);
```

Visual Basic Script Sample

The following Visual Basic script also generates the sample result file, and saves it as `Output.xml`. To try this script save it with the extension `.vbs`.

```
WScript.Echo "starting"

Dim outFile
Dim errCnt
Dim warningCnt

outFile = "output.xml"
errCnt = 1 ' retrieve that from your test results
warningCnt = 1 ' retrieve that from your test results

Set FSO = CreateObject("Scripting.FileSystemObject")
Set oTX = FSO.OpenTextFile(outFile, 2, True, -1) ' args: file,
8=append/2=overwrite, create, ASCII

oTX.WriteLine("<?xml version=""1.0"" encoding=""UTF-16""?>")
oTX.WriteLine("<ResultElement TestItem=""PerlTest"">")
oTX.WriteLine("  <ErrorCount>" & errCnt & "</ErrorCount>")
oTX.WriteLine("  <WarningCount>" & warningCnt & "</
WarningCount>")
oTX.WriteLine("  <Incident>")
oTX.WriteLine("    <Message>some unexpected result</Message>")
oTX.WriteLine("    <Severity>Error</Severity>")
oTX.WriteLine("    <Detail>")
oTX.WriteLine("      <TestName>function main()</TestName>")
oTX.WriteLine("      <Info>some additional info; eg.
stacktrace</Info>")
oTX.WriteLine("    </Detail>")
oTX.WriteLine("  </Incident>")
oTX.WriteLine("  <Incident>")
oTX.WriteLine("    <Message>some warning message</Message>")
oTX.WriteLine("    <Severity>Warning</Severity>")
oTX.WriteLine("    <Detail>")
oTX.WriteLine("      <TestName>function main()</TestName>")
oTX.WriteLine("      <Info>some additional info; eg.
stacktrace</Info>")
oTX.WriteLine("    </Detail>")
```

```
oTX.WriteLine("  </Incident>")
oTX.WriteLine("</ResultElement>")
```

Communicating with an External System Over SSL

Java Runtime Environment (JRE) version 5 or higher must be installed on your computer perform the steps in this task. You can download JRE from *Java SE Downloads*.

If the certificate of the host you want to connect to is self signed, you may receive the following error message:
sun.security.provider.certpath.SunCertPathBuilderException: unable to find valid certification path to requested target

Note: This error message does not display for valid certificates, which are certificates that are signed by Certificate Authorities.

To use a server with a self-signed certificate, you need to perform the following steps:

1. Download the SSL certificate from the server.

   Use a browser to view the certificate and export it. For example, in Mozilla Firefox, navigate to **Tools** > **Page Info** > **Security** > **View Certificate** > **Details** > **Export**.
2. Start the key- and certificate-management tool *Keytool*.

   Keytool is part of your JRE installation, and is located in your JRE installation folder, for example `C:\Program Files\Java\jre1.6.0_07\bin`. For additional information on Keytool, refer to the *Java SE Technical Documentation*.
3. To add the certificate to the default Java keystore on the front-end server and application server, type for example the following command in Keytool:

   ```
   keytool
     -importcert
     -file CERTIFICATE.crt
     -keystore "C:\Program Files (x86)\Silk\Silk Central <version>\lib\jre\lib
   \security\cacerts"
   ```

   You are prompted to type the password.
4. Type the default keystore password, `changeit`.
5. Restart the front-end server and the application server to reload the keystore.

Index

.NET Explorer
  configuring 104

A

accessing
  audit log 478
  context-sensitive execution reports 348
  context-sensitive execution-plan-run reports 348
  context-sensitive requirements reports 348
  context-sensitive test reports 349
  databases 519
  most recently used reports 319
  tests from grid view 110
accounts
  system administrator 522
action properties 279
action-driven workflow
  about 269
  reason codes 271
  state owner 270
activating
  builds 486
  components 488
  execution servers 467
  individual values 495
  platforms 489
  products 491, 494
  project baselines 454
  projects 454
  schedules 498
  value lists 495
activities
  across projects 230
  managing 222
  page 225
Activities page
  columns, displaying and hiding 222
  columns, reordering 224
  columns, resizing 224
  default settings 225
  deleting last execution runs 222
  entering issues 222
  filtering boolean-based values 223
  filtering date-based values 223
  filtering number-based values 223
  filtering predefined list 223
  filtering test runs 222
  filtering text-based values 222
  filters, removing 224
  grouping 224
  grouping test runs, overview 224
  remove grouping 224
  sorting test runs 225
adding
  builds 486
  call to shared steps 19, 134
  chart servers 526
  cloud profiles 469
  components 487
  data source values to manual test steps 129
  definite runs 194
  dependent execution plans 34, 185
  exclusions 193
  group accounts 452
  LDAP servers 437
  locations 462
  manual testers 180
  manual testers to configurations 169
  multiple TestPartner tests 104, 582
  parameters to configurations 167
  parameters to tests 38, 121
  platforms 488
  products 490
  projects 453
  schedules 497
  sub-reports 245
  test containers 94
  test folders 95
  user roles 442
  value lists 494
  versions 493
adding AUT host
  Silk Test Classic 179, 580
adding columns
  inboxes 256
adding issue tracking profiles
  Bugzilla 397, 533
  Changepoint 399, 534
  IBM Rational ClearQuest 400, 536
  Issue Manager 402, 537
  JIRA 396, 531
  Rational ClearQuest 400, 536
  StarTeam 403, 539
  Team Foundation Server 406, 541
  TFS 406, 541
adding links
  test containers 95
adding profile
  VMware vCloud 469
adding quality goals 231
adding source control profiles
  Git 410, 555
  PVCS 413, 558
  Silk Test Workbench 415, 559
  StarTeam 416, 561
  subversion 417, 562
  SVN 417, 562
  TestPartner 419, 564
  TFS 411, 556
  UNC 421, 566
  Version Manager 413, 558
  VFS 409, 553
adding system-wide triggers 289
adding TFS issue tracking profiles

installing proxy service 405, 541
adjusting
cookie duration 501
Administrator
user roles 441
advanced context-sensitive execution reports
enabling 349
advanced context-sensitive requirement reports
enabling 350
advanced context-sensitive test reports
enabling 350
advanced settings
configuring 500
agent computers
overview 14, 432
agile planning tools
integration default nodes 84
Analyst
user roles 441
analyze results
automated tests 207
manual tests 206
analyzing
server log files 479
Silk Performer test results 219, 573
test runs 206
analyzing test results
quick start task 23
application configuration
overview 441
application server
location 433, 436
overview 14
specifying location 433, 436
application server log
page 482
application server logs
page for system administrator 530
application servers
configuring 433
configuring secure connections with IIS 434
overview 432
applying
filters 430
architecture
overview 14, 432
archiving issues 284
assigned execution plans
overview 126
assigned executions
viewing 126
assigned manual tests
print 172
assigned requirements
locating 124
page 124
removing 124
assigned requirements page
tests 124
assigned tests
print manual tests 172
removing from requirements 55
assigned tests page
executions 189
requirements 56
assigning
existing issues 233
keywords to configurations 168
keywords to execution plans 35, 182
requirements to tests 39, 123
tests from grid view to execution plans 32, 188
tests to attributes 38, 119
tests to execution plans 188
tests to execution plans manually 32, 188
tests to execution plans through filter 33, 189
assigning manual tests
to manual testers 157
assigning requirements to tests
overview 123
assigning tests
execution plans 188
to testing cycles 156
Atlassian JIRA
issue tracking profiles 395, 531
Atlassian JIRA Agile
backlog 75, 390, 548
integrating 74, 390, 548
priority 75, 390, 548
attaching
files to requirements 29, 52
files to test elements 39, 125
links to requirements 29, 52
links to test elements 40, 125
attaching files
requirements 29, 52
attaching links
requirements 29, 52
attachments
requirements 52
tests 125
attachments page
requirements 53
attribute types 373, 379
attributes
assigning to tests 38, 119
creating 21, 373
deleting 374
deleting from tests 119
editing 119, 374
overview 373
page 375
tests 118
attributes page
tests 118
audit log
accessing 478
features 477
overview 477
page 478
viewing 478
automated tests
analyze results 207
converting to manual 117
manual execution 197

automatic fields
customizing 266
average page-time trend
reports 356, 575
average transaction busy-time trend
reports 357, 576

B

backlog
Atlassian JIRA Agile 75, 390, 548
baselines
Caliber 73, 388, 546
comparing with projects 368
creating for project 460
projects 460
BIRT
adapting report templates 474
configuring 472
customizing report templates 26, 315
customizing reports 315
data source settings 473
establishing database access 473
installing 472
blocked
manual test 204
browser
settings 13
bug workflow 272
Bugzilla
adding issue tracking profiles 397, 533
editing issue tracking profiles 398, 533
issue tracking profiles 397, 533
build information
projects 367
updates 367
build information files
creating 367
updates 367
builds
activating 486
adding 486
deactivating 486
deleting 487
editing 486
managing 486
sorting list 486
tagging 487

C

caching
JMX measures in tests 507, 509
calculated properties
about 376
add-edit page 377
creating 377
Caliber
baselines 73, 388, 546
copying integrated projects 73, 389, 547
creating baseline 74, 389, 547
handling test assignments 73, 389, 546
integrating 72, 388, 545
integration 384
CaliberRDM
integration 384
call to shared steps
adding 19, 134
dialog box description 134
calling
test steps 134
capturing
tests 149
capturing screen images 201
change notification
enabling 22, 381
list of changes 382
overview 381
change notifications
disabling 382
page 382
requirements 60
Changepoint
adding issue tracking profiles 399, 534
issue tracking profiles 398, 534
changes
requirements 58
tests 99
changing
test status 207
changing column labels
inboxes 256
changing sort order
inboxes 256
chart server
overview 14
chart servers
adding 526
editing 526
locations 526
overview 432
page 527
removing connections 527
charts
displaying 27, 314
overview 314
printing 314
removing 314
child requirements
creating 45
cleaning up
test packages 99
clearing
parameter assignments 122
clearing flags
requirements 63
clients
about 522
creating 523
default 524
editing 523
page 525
permissions 525
removing 524

cloud
integration 469
cloud profiles
adding 469
deleting 470
editing 470
cloud providers
page 471
code analysis
build versions 343
configuration 326
configure DPAnalysis to launch your AUT 326
details page 341
enabling 324
generating code-change impact reports 27, 343
Java examples 324
Java options 324
latest builds 343
overview 323
select classes for report dialog 343
viewing coverage information for packages/namespaces 344
windows code analysis framework and devpartner analytics 325
code analysis and automated testing
multiple AUTs 328
one AUT 327
overview 327
code analysis examples
Java 324
code coverage
overview 323
reports 346
trend report 346
code coverage reports
method coverage comparison 346
trend 346
code-change impact
reports 344
code-coverage information
viewing for packages/namespaces 344
collapsing
execution plans tree 171
tests tree 83
columns
resizing in grid view 112
compare
test run results 207
comparing
projects and baselines 368
versions 20, 138
components
activating 488
adding 487
deactivating 488
deleting 488
editing 487
managing 487
sorting list 488
concepts
execution server 502
configuration suite
configuration page 170
configuration suites
copying 171
deleting 172
document view 151
editing 171
managing 175
configuration testing
adding manual testers 169
adding parameters to configurations 167
assigning keywords to configurations 168
creating configuration suites from execution plans 167
creating suite 167
overview 166
removing keywords 169
removing parameters from configurations 168
removing testers 169
configurations page 170
configuring
.NET Explorer 104
advanced settings 500
application servers 433
BIRT 472
deployment environments 179
execution dependencies 185
JMX settings 508
JUnit 105, 567
LQM report updater interval 511
LQM reporting updater 510
manual tests 106
MSTest 109, 568
non-standard SSL ports for execution servers 467
NUnit 106, 569
process executor 108, 570
remeber login option 500
requirements management 383
SAP Solution Manager 544
schedules 497
Silk Central location 514
Silk Performer 107, 571
Silk Test Classic 107
Silk Test Classic plan 103
Silk Test Workbench 108, 579
system 434
test properties 101
TestPartner 104, 582
Windows scripting 108, 583
configuring projects
quick start task 20
settings 20, 370
configuring secure connections
Tomcat 434
contents
tests 87
context-sensitive execution reports
accessing 348
enabling 349
context-sensitive execution-plan-run reports
accessing 348
context-sensitive reports
accessing execution 348
accessing execution-plan run 348

accessing requirements 348
accessing test 349
enabling advanced execution 349
enabling advanced requirement 350
enabling advanced test 350
enabling execution 349
enabling requirement 350
enabling test 350
context-sensitive requirement reports
enabling 350
context-sensitive requirements reports
accessing 348
context-sensitive test reports
accessing 349
enabling 350
cookie duration
adjusting 501
copy project
dialog box 457
copy to other projects
test elements 84
copying
Caliber integrated projects 73, 389, 547
configuration suites 171
execution plan folders 171
execution plans 171
filters 431
project baselines 454
projects 454
test elements 83
test packages 98
user roles 443
coverage
direct mode 57
full mode 57
modes 57
requirements 57
coverage page
requirements 57
creating
advanced filters 31, 430
build information files 367
child requirements 45
configuration suite 167
configuration suites from execution plans 167
custom html tab 148, 543
custom parameters 121
custom requirement properties 378
custom schedules 33, 192
custom step properties 22, 380
data-driven tests 37, 128
databases 518
execution plan parameters 176
execution plans 31, 175
execution plans in grid view 110, 175
execution-server keywords 466
filters 21, 30, 38, 371, 429
issues 232
issues (Issue Manager) 239
keywords 182
project baselines 460
reports 23, 307
reports (Issue Manager) 245
requirements 28, 45
shared steps 18, 134
step properties 22, 380
test packages 37, 97
tests 36, 100
creating baseline
Caliber 74, 389, 547
creating filters
flagged requirements 63
creating manual tests
outside user interface 116
creating reports
overview 306
creating testing cycles 155
CSV
configuring data sources 424
CSV data
downloading from a data source 129
current run
page 215
current state 280
custom attributes
creating 21, 373
deleting 374
editing 374
overview 373
custom fields
configuring 269
defining 269
deleting 269
editing 269
custom html app tab
creating 148, 543
custom measure trend
reports 358, 577
custom reports
BIRT 472
software prerequisites 472
SQL functions 308
custom requirement properties
creating 378
delete 380
page 375
custom schedules
creating 33, 192
custom step properties
creating 22, 380
deleting 380
editing 380
page 381
custom tabs
creating 268
custom tabs and fields
Issue Details page 268
customization properties
issues 266
customizing
date and time formats 505
customizing report templates
BIRT 26, 315
customizing reports

overview 315
cutting
test elements 83

D

dashboard
adding a report panel 44, 313
adding panels 41
overview 40
dashboard panels
introduction 41
issues created per tester 41
manual tests assigned to me 41
requirements coverage status 41
testing activity 41
testing cycle progress 41
data caching
tests 506
data mart
architecture 292
disable 298
DM_TestStatus 299
missing data 298
overview 291
performance 298
reporting 291
RV_ConfigurationSuiteStatus 305
RV_ExecutionPlanStatusPerBuild 304
RV_ExecutionPlanStatusRollup 304
RV_LatestTestStatus 301
RV_MaxTestRunID 302
RV_TestingCycleStatus 303
RV_TestStatusExtended 299
tables and views 299
troubleshooting 298
writing queries 292
wrong data 298
data source values
adding to manual test steps 129
data sources
configuration page 426
configuring CSV 424
configuring Excel 424
configuring JDBC 423
data-driven tests 423
deleting 426
donwloading Excel files 424
page 426
synchronizing 425
uploading updated Excel files 425
data-driven
creating tests 37, 128
data set page 131
downloading CSV data 129
editing properties 130
data-driven properties
removing 130
data-driven tests
data import considerations 131
data sources 423
Excel 130
instances 130
overview 128
test types 130
viewing activities 211
worksheet handling 130
database servers
overview 432
databases
accessing 519
ALM URIs 519
architecture 14
BIRT report templates 473
creating 518
database page 520
disconnecting 519
IDs 519
overview 518
date and time
user-defined settings 504
date formats
customizing 505
deactivating
builds 486
components 488
execution servers 467
individual values 495
platforms 489
products 491, 494
project baselines 454
projects 454
schedules 498
value lists 495
default workflows 272
definite runs
adding 194
deleting 194
editing 194
schedules 194
scheduling 499
delete
requirement properties 380
deleting
attributes from tests 119
builds 487
cloud profiles 470
components 488
configuration suites 172
custom step properties 380
data sources 426
definite runs 194
exclusions 194
execution plan dependencies 186
execution plan folders 172
execution plan runs and result files 208
execution plans 172
execution servers 467
filters 372, 431
group accounts 452
individual values 496
issue tracking profiles 407
issues 234
LDAP servers 438

locations 463
obsolete requirements 47
platforms 489
products 491
project baselines 455
projects 455
report templates 477
requirement attachments 53
schedules 498
server log files 480
source control profiles 422
step properties 380
sub-reports 310
system-wide triggers 290
test attachments 126
test elements 83
test run results 208
value lists 496
versions 494
deleting products
Issue Manager 260
deleting profile
VMware vCloud 470
deleting property mapping
requirements integration 81
deleting quality goals 232
deleting testing cycles 159
dependencies
deleting 186
editing 186
page 187
deployment
page 183
deployment environments
configuring 179
details view
viewing issue statistics 233
devpartner
dpanalysis.exe 329
DevPartner Code Coverage Integration 531
disabling
caching of host name resolutions 513
change notifications 382
requirements integration 81
unused ports on execution servers 514
unused ports on front-end servers 515
disconnecting
databases 519
displaying
charts 27, 314
host name on Web browsers 506
displaying columns
grid view 111
document view
requirements 49
tests 82
viewing issue statistics 232
documentation workflow 274
donwloading Excel files
data sources 424
DOORS
integrating 76, 392, 549
downloading
CSV data from a data source 129
report templates 311, 475
server log files 479
Silk Performer projects 217, 571
Silk Performer test result packages 219, 574
dpanalysis.exe configuration file
analysisoptions element 332
arguments element 333
excludeimages element 334
host element 335
name element 335
path element 336
process element 336
runtimeanalysis element 337
service element 338
targets element 339
workingdirectory element 340
dynamic hardware provisioning
keywords 180

E

edit
library visibility 133
edit execution server
dialog box 468
Edit LDAP Server
dialog box 439
editing
attributes 119
builds 486
chart servers 526
cloud profiles 470
components 487
configuration suites 171
custom requirement properties 379
custom step properties 380
data-driven properties 130
definite runs 194
dependencies 186
execution plan folders 171
execution plans 171
external properties 80
filters 372, 430
individual values 495
issues (Issue Manager) 239
LDAP servers 437
locations 462
manual test steps 19, 116, 135
parameters 121
platform 489
products 491
project baselines 454
projects 454
report parameters 25, 246, 321
report permissions 475
report properties 25, 320
report properties (Issue Manager) 246
requirements 46
schedules 498
Silk Performer test properties 219, 573

step properties 380
success conditions 93
system-wide triggers 289
test containers 95
test folders 96
test mapping file 147
tests 36, 101
user roles 443
value lists 495
versions 493
editing issue tracking profiles
Bugzilla 398, 533
IBM Rational ClearQuest 401, 536
Issue Manager 402, 538
JIRA 396, 532
Rational ClearQuest 401, 536
StarTeam 404, 540
Team Foundation Server 407, 542
TFS 407, 542
editing manual test steps
Silk Central 19, 116, 135
editing profile
VMware vCloud 470
editing property mapping
requirements integration 80
editing source control profiles
Git 411, 555
PVCS 414, 558
Silk Test Workbench 415, 560
StarTeam 417, 561
Subversion 418, 563
SVN 418, 563
TestPartner 420, 565
TFS 412, 557
UNC 421, 566
Version Manager 414, 558
VFS 409, 554
email notification
using
email notification 243
email notification rules
defining 285
email notifications
automatic requirement synchronization 72
enabling 291
email server
about 528
configuring 528
page 528
embedding
reports 312
enabling
advanced context-sensitive execution reports 349
advanced context-sensitive requirement reports 350
advanced context-sensitive test reports 350
basic email notification 291
change notification 22, 381
code analysis 324
context-sensitive execution reports 349
context-sensitive requirement reports 350
context-sensitive test reports 350
enabling code analysis
execution plans 341
entering
issues (Issue Manager) 239
Excel
configuring data sources 424
downloading from data source 424
importing requirements 65
uploading updated files 425
Excel file
requirements 66
Excel import
versioning tests 147
Excel update
versioning tests 147
exclusions
adding 193
deleting 194
editing 193
schedules 193, 499
executing
attended Silk Performer tests 218, 572
automated tests manually 197
individual execution plans 35, 196
tests 196
executing manual tests
manual testing 198
manual testing window 198
executing Silk Test Classic tests
overview 220, 580
execution
manual execution planning 152
schedules page 195
setup/cleanup page 178
execution dependencies
configuring 185
execution duration
suspicious 503
execution environment 461
execution parameters
page 177
execution plan folders
copying 171
deleting 172
editing 171
execution plan properties
document view 151
execution plan runs
details 209
execution planning
adding manual testers to a testing cycle 155
dependencies page 187
edit assigned testers 155
overview 150
reports 351
toolbar functions 150
execution plans
adding dependent 34, 185
adding manual testers 180
adding parameters 176
assigning keywords 35, 182
assigning tests 188
assigning tests from grid view 32, 188

assigning tests through filter 33, 189
combinations of automated and manual tests 178
configuring cleanup executions 34, 178
configuring setup executions 34, 178
copying 171
creating 31, 175
creating configuration suites 167
creating in grid view 110, 175
deleting 172
deleting dependencies 186
deleting runs and result files 208
dynamic hardware provisioning 180
editing 171
editing dependencies 186
enabling code analysis 341
executing 35, 196
locating assigned tests 189
managing 175
manually assigning tests 32, 188
not passed tests 353, 354
overriding test parameters 176
parameters 176
print assigned manual tests 172
removing assigned tests 189
removing keywords 182
removing parameters 177
removing testers 180
run comparison reports 351
run details 209
run errors report 352
schedules 191
status calculation 176
status overview 355
tree 171
execution plans tree
collapsing 171
expanding 171
filtering 172
execution reports
not passed tests 353, 354
run comparison 351
run errors 352
status overview 355
execution server
concepts 502
overview 14
execution server log
page 483
execution servers
activating 467
assigning keywords 466
configuring cloud-hosted 466
configuring non-standard SSL ports 467
configuring physical 465
creating keywords 466
deactivating 467
deleting 467
disabling unused ports 514
hardware provisioning 464
host name resolution 513
keywords 464
overview 432
setting up 464
execution status
overview report 355
executions
assigned tests page 189
current run page 215
deployment page 183
notifications page 187
parameters page 177
properties page 172
run dialog box 196
runs page 212
expanding
execution plans tree 171
tests tree 83
exporting
projects 455
tests to Excel 145
External IDs
test packages 97
external properties
editing 80
overview 80
viewing 80
external requirements
generating tests 79
external requirements management tools
overview 69, 383
external systems
communicating over SSL 588

F

files
attaching to test elements 39, 125
filtering
boolean values in grid view 113
date-based values in grid view 112
execution plans tree 172
number-based values in grid view 112
overview 427
requirements tree 49
test containers 85
test folders 85
tests in grid view 112
text-based values in grid view 112
values using predefined list in grid view 113
filtering test runs
Activities page 222
filters
applying 430
assigning tests to execution plans 33, 189
copying 431
creating 21, 30, 38, 371, 429
creating advanced 31, 430
deleting 372, 431
details 427
editing 372, 430
global 370, 427
overview 370, 427
page 373
recent changes 428

removing from grid view 113
removing specific from grid view 113
find
global 9
in Silk Central 9
finding
requirement properties 50
test properties 102
finding assigned tests
requirements 54
flagged requirements
creating filters 63
flags
requirements 62
folders
managing 175
formats
date and time 504
front-end server
logs 530
overview 14
front-end server log
page 481
front-end servers
disabling unused ports 515
overview 432

G

generating reports
code-change impact 27, 343
generating tests
external requirements 79
getting started
exploring sample database 235
Git
adding source control profiles 410, 555
editing source control profiles 411, 555
source control profiles 410, 555
global
reports 306
global filters
overview 370, 427
global schedules
specifying 192
grid view
accessing tests 110
assigning existing issues to tests 114
assigning tests to execution plans 32, 188
assigning tests to requirements 54
creating execution plans 110, 175
displaying and hiding columns 111
filtering boolean values 113
filtering date-based values 112
filtering number-based values 112
filtering tests 112
filtering text-based values 112
filtering values using predefined list 113
grouping tests 111
multi-edit 110
overview 110
removing all filters 113
removing specific filters 113
reordering columns 111
resizing columns 112
restoring default settings 113
sorting tests 111
tests 110
grid view filters
removing all 113
removing specific 113
group accounts
adding 452
creating 452
deleting 452
editing 452
maintaining 451
group properties
group information 252
initial issue state 252
issue related 252
group security settings
Issue Manager 253
group settings
page 453
grouping
tests in grid view 111
groups
security settings 253
setting up for Issue Manager 251

H

handling test assignments
Caliber 73, 389, 546
hiding
host name on Web browsers 506
hiding columns
grid view 111
history
requirements 58
tests 99
history page
requirements 59
tests 100
host name
displaying on Web browsers 506
hiding on Web browsers 506
host name display
Web browsers 506
host name resolution
disabling caching 513

I

IBM Rational ClearQuest
adding issue tracking profiles 400, 536
editing issue tracking profiles 401, 536
issue tracking profiles 400, 535
IBM Rational DOORS
installing on front-end server 76, 391, 549
integrating 76, 391, 549
IBM Rational RequisitePro
integrating 77, 393, 550

integration 384
importing
projects 456
tests from Excel 146
importing requirements
Excel 65
Word 63
importing tests from Excel
test file 146
inbox settings
defining for projects 259
inboxes
adding 254
default view 256
deleting 256, 288
editing 255
modifying default view 256
setting up 253
increasing
server Java heap sizes 516
installing
BIRT 472
IBM Rational DOORS client on front-end server 76, 391, 549
Silk Central 12
Team Foundation Server Web Service Proxy 405, 541
installing proxy service
TFS 405, 541
integrating
Atlassian JIRA Agile 74, 390, 548
Caliber 72, 388, 545
DOORS 76, 392, 549
IBM Rational DOORS 76, 391, 549
IBM Rational RequisitePro 77, 393, 550
Rally 79, 147, 394, 543, 552
task management tools 484
VersionOne 485
integrating Atlassian JIRA Agile
overview 74, 390, 547
integrating Caliber
overview 72, 387, 545
integrating Rally
overview 78, 394, 551
integration
Caliber 384
CaliberRDM 384
cloud profiles 469
IBM Rational RequisitePro 384
SAP Solution Manager 544
Telelogic DOORS 384
integration default nodes
tests 84
integrations
process executor 570
intelligent assistant 283
internal property values 378
issue details
page (Issue Manager) 237
Issue Details page
custom tabs and fields 268
customizing 265
issue details tabs 237
Issue Manager
about 234
adding issue tracking profiles 402, 537, 538
generating reports 244
getting started 235
introduction 236
optional features 251
overview 12, 237, 401, 537
routine administrative tasks 250
setting up your data 249
SOAP API 246
issue reports
issues per component 356
issue routing
default routing 260
rules 260
issue state
initial, group 252
initial, user 257
issue tracking
page 407
page (Issue Manager) 237
toolbar (Issue Manager) 238
issue tracking profiles
Atlassian JIRA 395, 531
Bugzilla 397, 533
Changepoint 398, 534
deleting 407
IBM Rational ClearQuest 400, 535
JIRA 395, 531
mapping issue states 395
overview 395
page 407
Rational ClearQuest 400, 535
SAP Solution Manager 544
StarTeam 403, 538
Team Foundation Server 405, 540
TFS 405, 540
issue verification preferences
setting 242
issues
about archiving 283
Activities page 222
archiving 284
assigning 233
creating 232
creating (Issue Manager) 239
deleting 234
document view 232
editing (Issue Manager) 239
entering (Issue Manager) 239
overview 232
page 233
synchronizing internal and external states 234
taking action on (Issue Manager) 242
viewing statistics in details view 233
viewing statistics in document view 232
working with (Issue Manager) 241
issues per component
reports 356

J

Java heap sizes
    increasing 516
Java options
    code analysis 324
Java system properties
    accessing Silk Central parameters 568
JDBC
    configuring data sources 423
JIRA
    adding issue tracking profiles 396, 531
    editing issue tracking profiles 396, 532
    issue tracking profiles 395, 531
JMX measures
    LQM reporting updater 510
    monitoring DataMart Updater 512
    monitoring LQM reporting updater 511
JMX settings
    configuring 508
JUnit
    configuring 105, 567
JUnit tests
    available Silk Central parameters 568

K

keywords
    assigning to configurations 168
    assigning to execution plans 35, 182
    assigning to execution servers 466
    creating 182
    dynamic hardware provisioning 180
    execution servers 464
    removing from configurations 169
    removing from execution plans 182

L

last executions
    deleting 222
LDAP
    authentication 436
    integration 436
LDAP authentication
    logic 437
    mixed mode 437
    standard mode 437
LDAP servers
    adding 437
    deleting 438
    editing 437
    page 438
    testing connection 438
libraries
    change track 139
    concept 131
    display in projects 133
    history 139
    introduction 131
    overview 131
    properties 132
    step properties 132
    topics 131
    visibility 133
library visibility
    edit 133
license types 524
licenses
    checking out and in 524
licensing
    Silk Central 12
limitations
    VMware vCloud 471
linking
    Rally user stories to tests 148, 543
links
    attaching to test elements 40, 125
list of values
    configuration page 496
lists
    project baselines 368
    projects 368
load test agent cluster files
    editing 441
load test agent clusters
    page 441
    removing 440
    Silk Performer 440
    uploading 440
load test agent clusters file
    adding 440
    changing 440
    deleting 440
locating
    assigned requirements 124
locations
    adding 462
    deleting 463
    editing 462
    managing 462
log files
    level of detail 480
    managing 480
    servers 479
logging in and out 13
login
    configuring remember login option 500
    cookie duration 500
    enhanced options 500
    page 13
    remember login 500
login options
    adjusting cookie duration 501
    configuring remember login option 500
    enhanced 500
LQM report updater
    configuring interval 511
LQM reporting updater
    configuring 510
    JMX measures 510

M

maintaining
value lists 494
managing
builds 486
components 487
locations 462
platforms 488
products 490
products and platforms 485
projects 453
report templates 472
requirements 45
system-wide triggers 289
versions 493
managing requirements
quick start task 28
managing shared step libraries
quick start task 18
managing test executions
quick start task 31
managing tests
quick start task 36
manual execution planning
assigning tests to manual testers 166
matching tests 153
overview 152
specify configurations 162
test assignment 159
test selection 152
manual execution planning - walkthrough
adding manual testers 164
creating testing cycles 163
selecting tests and scheduling 165
user interface 162
walkthrough 162
manual executions
planning 152
manual test
blocked 204
manual test steps
adding data source values 129
custom properties page 381
editing 19, 116, 135
properties page 381
manual testers
adding to configurations 169
assigning manual tests to 157
moving tests to other manual testers 160
manual testing
attaching issues 203
attaching step result files 203
offline manual testing
overview 205
overview 198
Manual Testing Client
overview 14
manual testing window
overview 198
overview area 198
statuses of tests and test steps 204
test steps area 200
manual tests
adding calls to shared steps 19, 134
analyze results 206
assigning to manual testers 157
calls 134
configuring 106
converting to automated 117
converting to automated tests 117
creating outside user interface 116
overview 114
printing 117
step properties 132
versions 138
mapping
requirements from Excel 66
mapping issue states
issue tracking profiles 395
mappings
VMware vCloud 471
memory settings
servers 515
method coverage comparison
reports 346
milestones
adding to testing cycles 156
moving columns
inboxes 256
moving tests
from one manual tester to another 160
from one testing cycle to another 160
MRU reports
setting maximum number 515
MSTest
configuring 109, 568
multi-edit
test attributes in grid view 110
test properties in grid view 110
multiple TestPartner tests
adding 104, 582

N

new execution server
dialog box 468
New LDAP Server
dialog box 439
new location
dialog box 463
no schedules
specifying 193
notations
parameters 122
notification rules
defining 243
notification triggers
defining 244
defining systemwide 244
notifications
page 187, 382
NUnit
configuring 106, 569

O

obsolete
  requirements 46
obsolete requirements
  convert to active 47
  deleting 47
Office import
  editing the test mapping file 147
  exporting tests 145
  importing tests 146
  importing tests from Excel 146
  test Excel file 146
  updating tests 145
offline manual testing
  downloading tests 206
  uploading results 206
open interface
  creating manual tests 116
opening
  Silk Performer projects 218, 572
overall page-time trend
  reports 358, 577
overall transaction busy-time trend
  reports 359, 578
overriding
  test parameters 176
overview
  product 9, 432
  test folders 95

P

packages/namespaces
  viewing code-coverage information 344
panels
  adding to dashboard 41
parameters
  adding to configurations 167
  adding to execution plans 176
  adding to tests 38, 121
  calling from JUnit tests 568
  clearing 122
  creating custom 121
  editing 121
  notations 122
  overriding test parameter 176
  page 120
  parameters within parameter values 122
  removing from configurations 168
  removing from execution plans 177
  replacing upon execution 122
pasting
  test elements 83
percentile marker data
  Silk Performer results 517
  storing 517
performance trend
  reports 356, 575
performance trend reports
  average page-time 356, 575
  average transaction busy-time 357, 576
  custom measure 358, 577
  overall page-time 358, 577
  overall transaction busy-time 359, 578
permissions
  administration 447
  executions 445
  issues 446
  libraries 445, 446
  log files 447
  manual execution planning 445
  project settings 447
  projects 447
  quality goals 446
  reports 446
  requirements 444
  tests 445
platform configuration
  page 489
platforms
  activating 489
  adding 488
  deactivating 489
  deleting 489
  editing 489
  managing 488
  sorting list 489
ports
  disabling unused on execution servers 514
  disabling unused on front-end servers 515
printing
  charts 314
  manual tests 117
printing manual tests 205
priority
  Atlassian JIRA Agile 75, 390, 548
process executor
  configuring 108, 570
  integrations 570
product
  overview 9, 432
product settings
  defining 259
products
  activating 491, 494
  adding 490
  configuration page 491
  deactivating 491, 494
  deleting 491
  editing 491
  managing 490
  sorting list 491
project baselines
  activating 454
  copying 454
  creating 460
  deactivating 454
  deleting 455
  editing 454
  lists 368
  overview 460
Project Manager
  user roles 441

project settings
page 370, 459
projects
accessing recent 369
activating 454
adding 453
adding quality goals 231
build information 367
build information files 367
comparing with baselines 368
configuring settings 20, 370
copying 454
deactivating 454
defining inbox settings 259
deleting 455
deleting quality goals 232
editing 454
exporting 455
importing 456
lists 368
managing 453
overview 367
overview report 323
quality goals 230
quality goals page 231
see libraries 133
selecting 368
setting active 368
settings 370
templates 461
working with (Issue Manager) 248
properties
libraries 132
properties page
requirements 51
proposed changes 240
PVCS
adding source control profiles 413, 558
editing source control profiles 414, 558
source control profiles 413, 557

Q

quality goals
risk-based testing 16
quality goals execution report 363
quality goals planning report 363
quick start tasks
overview 18

R

Rally
creating custom html app 148, 543
integrating 79, 394, 552
integrating into 147, 543
linking user stories to tests 148, 543
Rally user stories
linking to tests 148, 543
Rational ClearQuest
adding issue tracking profiles 400, 536
editing issue tracking profiles 401, 536
issue tracking profiles 400, 535
re-run
not executed tests 196
reason
define status reason 427
status reason 426
recent changes
filters 428
recent projects
accessing 369
switching 369
recording videos in the manual testing window 202
removing
assigned requirements 124
assigned tests from requirements 55
charts 314
data-driven properties 130
execution plan parameters 177
keywords from configurations 169
keywords from execution plans 182
parameters from configurations 168
report templates 312
requirements integration 82
testers from configurations 169
testers from execution plans 180
removing columns
inboxes 256
removing tests
from manual testers 161
from testing cycles 160
reordering
columns in grid view 111
test elements 84
replacing
requirement properties 50
test properties 103
report parameters
editing 25, 246, 321
overview 321
report properties
editing 25, 320
editing (Issue Manager) 246
overview 320
report templates
deleting 477
downloading 311, 475
editing permissions 475
establishing database access 473
managing 472
overview 311
page 477
removing 312
setting permissions 475
updating sources 476
uploading 311, 476
Word 315
Word sample 316
Reporter
user roles 441
reporting
tables and views 299
reports

accessing MRU 319
adding sub-reports 26, 310
all related issues 61, 362
average page-time trend 356, 575
average transaction busy-time trend 357, 576
bookmarking 319
chart page 315
code coverage 346
code coverage trend 346
code-change impact 344
context-sensitive 347
creating 23, 307
creating (Issue Manager) 245
creating and customizing 306
custom measure trend 358, 577
data mart 291
data mart architecture 292
data mart overview 291
data page 322
default reports 344
deleting sub-reports 310
displaying charts 27, 314
downloading templates 311
editing parameters 25, 321
editing properties 25, 320
embedding 312
execution plan run comparison 351
execution plan run errors 352
execution planning 351
execution status overview 355
generating 27, 318
generating (Issue Manager) 244
generating code-change impact 27, 343
global 306
how to create 292
issues per component 356
manual tests 90, 364
method coverage comparison 346
not passed tests per execution plan 353, 354
overall page-time trend 358, 577
overall transaction busy-time trend 359, 578
overview 291
parameters page 322
performance trend 356, 575
printing charts 314
project overview 230, 323, 360
properties page 320
remote access 312
removing charts 314
removing templates 312
report page 323
reporting area 306
requirement documents 61, 361
requirement progress 61, 361
requirement status 60, 360
requirements 60, 360
saving 318
subscribing to a report 312
subscriptions 312
test baseline comparison 91, 364
test progress 90, 363
test run comparison 91, 365
test status 89, 362
tests 89, 362
toolbar functions 319
uploading templates 311
viewing 27, 318
viewing as PDF 319
writing advanced SQL queries 25, 309
repository configuration
initializing (Issue Manager) 248
requirement attachments
deleting 53
overview 52
viewing 53
requirement properties
custom 378
delete 380
editing 379
finding 50
requirement property types 373, 379
requirement reports
all related issues 61, 362
documents 61, 361
progress 61, 361
status 60, 360
requirements
activate obsolete 47
all related issues report 61, 362
assigned tests page 56
assigning tests from grid view 54
attaching files 29, 52
attaching links 29, 52
attachments 52
attachments page 53
calculated properties 376
change notifications 60
changes 58
clearing flags 63
collapsing tree 49
coverage 57
coverage modes 57
coverage page 57
creating 28, 45
creating a calculated property 377
creating child requirements 45
creating custom properties 378
custom properties 378
custom properties page 375
delete properties 380
deleting attachments 53
deleting obsolete 47
document reports 61, 361
document view 49
editing 46
editing external properties 80
email notifications for automatic synchronization 72
Excel file 66
expanding tree 49
finding properties 50
flags 62
generating tests 29, 55
history 58
history page 59

internal property values 378
locating assigned tests 54
managing 45
manually assigning tests 54
marking as obsolete 46
overview 45
progress reports 61, 361
properties 49
properties page 51
removing assigned tests 55
replacing custom properties 50
reports 60, 360
setting flags 62
status reports 60, 360
synchronizing 69
synchronizing across tools 71
synchronizing based on schedules 71
test coverage status 57
toggling coverage modes 57
toolbar functions 47
tracking history 59
tree 48
updating from Excel 65
updating from Word 64
viewing attachments 53
viewing external properties 80
viewing recent changes 59
Word file 64
working with tests 54
requirements coverage
modes 57
requirements import
overview 63
requirements integration
deleting property mapping 81
disabling 81
editing property mapping 80
removing 82
requirements management
page 384
requirements tree
collapsing 49
expanding 49
filtering 49
requirments management
configuring 383
rerun
not executed tests 196
resetting
grid view 113
resizing
columns in grid view 112
restoring default settings
grid view 113
result files
WSH 141, 585
results
screenshots 148
videos 149
reuse
test steps 18, 134
reusing
test packages 98
reverting
test packages to tests 99
risk based testing
about quality goals 230
adding quality goals 231
deleting quality goals 232
quality goals execution report 363
quality goals planning report 363
quality goals reference page 231
risk-based testing
overview 16
quality goals 16
roles settings
page 444
routing rules
adding 262
deleting 263
editing 263
overriding automatic preferences 264
reordering 264
setting up 260
specifying 261
run
dialog box 196
run comparison 207
runs
page 212

S

sample database
exploring 235
SAP Solution Manager
configuring 544
issue tracking profiles 544
system requirements 544
SAP Solution Manager integration 544
saving
reports 318
schedules
activating 498
adding 497
adding definite runs 194
adding exclusions 193
configuration page 499
configuring 497
creating custom 33, 192
deactivating 498
definite runs 191, 194
deleting 498
deleting definite runs 194
deleting exclusions 194
editing 498
editing definite runs 194
exclusions 191, 193
scheduling definite runs 499
scheduling exclusions 499
specifying global 192
specifying no schedules 193
scheduling
definite runs 499

execution plans 191
schedule exclusions 499
screen capturing
enabling for tests 149
search
global 9
in Silk Central 9
secure Web server connections
configuring with Tomcat 434
server log files
analyzing 479
changing level of detail 481
deleting 480
downloading 479
level of detail 480
managing 480
servers
increasing Java heap sizes 516
log files 479
memory settings 515
service manager
running services at system start 502
starting all services 502
starting individual services 502
stopping all services 502
stopping individual services 502
using 501
viewing log files 503
services
overview 501
setting
report permissions 475
suspicious execution duration 503
setting flags
requirements 62
setting maximum number
MRU reports 515
settings
attribute types 373, 379
attributes 373
attributes page 375
browser 13
change notification 381
creating custom requirement properties 378
filters 370, 427
filters page 373
overview 369
projects 370
requirement property types 373, 379
shared steps
creating 18, 134
detaching 135
shared steps objects
adding calls 19, 134
calls 134
overview 134
steps 114, 135
test steps 114, 135
usages 137
versions 138
visibility 133
Silk Central
architecture 14
installing 12
licensing 12
logging in 13
logging out 13
login 13
logout 13
welcome 6
Silk Central Administration Module
relationship with Issue Manager 248
Silk Central location
configuring in Issue Manager 514
Silk Meter license server
overview 14, 432
Silk Performer
analyzing test results 219, 573
configuring 107, 571
downloading test result packages 219, 574
editing test properties 219, 573
executing attended tests 218, 572
load test agent clusters 440
Performance Explorer 14, 579
projects 14, 217, 571
uploading test results 220, 574
Silk Performer projects
downloading 217, 571
opening 218, 572
Silk Performer results
percentile marker data 517
Silk Test
exporting results from 240
Silk Test Classic
adding AUT host 179, 580
agent under test 221, 581
automated execution of data-driven testcases 221, 581
configuring 107
executing automated tests 220, 581
logs 221, 581
time-out settings 221, 581
Silk Test Classic plan
configuring 103
Silk Test Classic tests
special characteristics 117
Silk Test Intelligent Assistant 239
Silk Test results
importing to Issue Manager 240
Silk Test Workbench
adding source control profiles 415, 559
configuring 108, 579
editing source control profiles 415, 560
source control profiles 414, 559
test parameters 123, 580
Silk4J 567
Silk4NET 569
SOAP API
Issue Manager 246
software quality optimization 9
sorting
builds 486
components 488
platforms 489
products 491

test folders 96
tests in grid view 111
values in value lists 496
versions 494
source control
page 422
source control profiles
deleting 422
Git 410, 555
overview 408
page 422
PVCS 413, 557
Silk Test Workbench 414, 559
StarTeam 416, 561
Subversion 417, 562
SVN 417, 562
Team Foundation Server 411, 556
TestPartner 419, 564
TFS 411, 556
UNC 421, 565
Universal Naming Convention 421, 565
Version Manager 413, 557
VFS 408, 553
Virtual File System 408, 553
specifying
global schedules 192
no schedules 193
SSL
configuring secure connections with IIS 434
handling self-signed certificates 588
secure Web server connections 434
standard issue fields
customizing 266
StarTeam
adding issue tracking profiles 403, 539
adding source control profiles 416, 561
editing issue tracking profiles 404, 540
editing source control profiles 417, 561
issue tracking profiles 403, 538
source control profiles 416, 561
starting
execution plan 35, 196
starting all services
service manager 502
starting individual services
service manager 502
state properties 278
status
define reason 427
reason 426
status calculation
execution plans 176
status reason
concepts 426
define 427
step properties
creating 22, 380
custom 380
deleting 380
editing 380
libraries 132
manual tests 132
page 381
step result files
setting the maximum size of 516
stopping all services
service manager 502
stopping individual services
service manager 502
storing
percentile marker data 517
sub-reports
adding 245
adding to reports 26, 310
deleting from reports 310
overview 310
subscribing
to a report 312
subscriptions 312
subversion
adding source control profiles 417, 562
Subversion
editing source control profiles 418, 563
source control profiles 417, 562
success conditions
editing 93
tests 93
SuperUser
user roles 441
suspicious execution duration
setting 503
SVN
adding source control profiles 417, 562
editing source control profiles 418, 563
source control profiles 417, 562
switching
recent projects 369
switching modes
test coverage 57
synchronize
virtual execution servers 466
synchronizing
data sources 425
internal and external issue states 234
requirements 69
requirements across tools 71
synchronizing requirements
based on schedules 71
system administration
overview 517
system administrator 517
system administrator
accounts 522
system configuration
overview 434
system diagnostics
system diagnostics page 529
viewing 530
system proxy
client enablement 529
configuring 529
page 529
system requirements
SAP Solution Manager 544

system-wide triggers
adding 289
deleting 290
displaying 291
editing 289
managing 289

T

tab labels
customizing 266
tables
data mart 299
reporting 299
tagging
builds 487
task management tools
integrating 484
Team Foundation Server
adding issue tracking profiles 406, 541
editing issue tracking profiles 407, 542
installing proxy service 405, 541
issue tracking profiles 405, 540
source control profiles 411, 556
Telelogic Doors
integration 384
test assignment
overview 159
test attachments
deleting 126
viewing 125
test containers
adding 94
adding links 95
editing 95
filtering 85
overview 94
test coverage
modes 57
switching modes 57
test coverage page
requirements 57
test coverage status
requirements 57
test elements
copy to other projects 84
copying 83
copying between projects 84
cutting 83
deleting 83
pasting 83
reordering 84
shortcuts 87
test export
Excel 144
test folders
adding 95
editing 96
filtering 85
overview 95
sorting 96
test import
Excel 144
Test Manager
user roles 441
test mapping file
editing 147
test packages
cleaning up 99
copying 98
creating 37, 97
External IDs 97
overview 96
reusing 98
reverting to test 99
test parameters
Silk Test Workbench 123, 580
test properties
configuring 101
finding 102
replacing 103
test reports
baseline comparison 91, 364
manual tests 90, 364
progress 90, 363
run comparison 91, 365
status 89, 362
test run results
compare 207
test runs
analyzing 206
deleting results 208
details 210
viewing details 36, 208
test selection
overview 152
test status
changing 207
test steps
calling 134
testbook 205
Tester
user roles 441
testing
connection to LDAP servers 438
testing cycle capacity 155
testing cycles
adding milestones 156
assigning tests 156
creating 155
deleting 159
finishing 158
hiding 157
importing tests
from execution plans to testing cycles 157
importing tests from execution plans to 157
moving tests to other testing cycle 160
properties page 174
removing tests 160
removing tests from manual testers 161
starting 158
testing cycles
showing 157
testing cycles properties page 174

TestPartner
adding source control profiles 419, 564
configuring 104, 582
editing source control profiles 420, 565
source control profiles 419, 564
tests
adding parameters 38, 121
assigning attributes 38, 119
assigning existing issues in grid view 114
assigning from grid view to execution plans 32, 188
assigning requirements 39, 123
assigning to execution plans through filter 33, 189
assigning to requirements from grid view 54
attaching files 39, 125
attaching links 40, 125
attachments page 126
attributes 118
baseline comparison report 91, 364
changes 99
changing run status 207
cleanup 177
contents 87
creating 36, 100
data caching 506
deleting attachments 126
deleting attributes 119
document view 82
editing 36, 101
editing attributes 119
enabling screen capturing 149
enabling video capturing 149
executing 196
executing trial runs 101
exporting to Excel 145
filtering in grid view 112
generating from requirements 29, 55
grid view 110
grouping in grid view 111
history 99
history page 100
import and update 145
importing from excel 146
importing from Excel 146
integration default nodes 84
issues page 127
JMX measures for caching 507, 509
manual test reports 90, 364
manually assigning to execution plans 32, 188
manually assigning to requirements 54
multi-edit attributes 110
multi-edit properties 110
overview 82, 100
parameters 119
progress reports 90, 363
properties page 85
removing assigned requirements 124
reports 89, 362
run comparison reports 91, 365
run details 210
runs page 126
screen captures 148
setup 177
status reports 89, 362
steps 114, 135
success conditions 93
test containers 94
test steps 114, 135
toolbar functions 88
tracking history 100
tree 83
updating from Excel 145
video captures 149
viewing assigned executions 126
viewing attachments 125
viewing recent changes 99
tests tree
collapsing 83
expanding 83
text export
rules 144
text import
rules 144
text update
rules 144
TFS
adding issue tracking profiles 406, 541
adding source control profiles 411, 556
editing issue tracking profiles 407, 542
editing source control profiles 412, 557
installing proxy service 405, 541
issue tracking profiles 405, 540
source control profiles 411, 556
time formats
customizing 505
time zones
overview 500
Tomcat
configuring secure Web server connections 434
toolbar
execution planning 150
issue tracking 238
requirements 47
tests 88
toolbar functions
reports 319
tracking
overview 221
tracking history
requirements 59
tests 100
trial runs
tests 101
triggers
entering parameters in subject 290
troubleshooting
data mart 298

U

UNC
adding source control profiles 421, 566
editing source control profiles 421, 566
source control profiles 421, 565
Universal Naming Convention

source control profiles 421, 565
update
virtual execution servers 466
updating
build informations 367
report template sources 476
tests from Excel 145
updating from Excel
requirements 65
updating from Word
requirements 64
uploading
report templates 311, 476
Silk Performer test results 220, 574
uploading Excel files
data sources 425
user account properties
initial issue state 257
issue related 257
user accounts
adding 449
assigning groups 449
assigning roles 449
deleting 450
editing 258, 449
maintaining 448
security settings 258
setting up for issue management 257
user and group accounts
overview 448
user groups
setting up for Issue Manager 251
user interface
tour 9
using 9
user roles
adding 442
copying 443
deleting 443
description 441
editing 443
permissions 444
user roles and permissions
overview 441
user security settings
Issue Manager 258
user settings
page 450
using
service manager 501
user interface 9
using Issue Manager
assessing the interface 250
assessing the workflows 250
gathering information about people 249
gathering information about products 250

V

value lists
activating 495
adding 494
deactivating 495
deleting 496
editing 495
maintaining 494
overview 494
sorting values 496
values
activating 495
deactivating 495
deleting 496
editing 495
vCloud
adding profile 469
deleting profile 470
editing profile 470
limitations 471
mappings 471
version and build
editing 204
Version Manager
adding source control profiles 413, 558
editing source control profiles 414, 558
source control profiles 413, 557
versioning
tests during Excel import 147
tests during Excel update 147
VersionOne
integrating 485
versions
adding 493
comparing 20, 138
creating 19, 138
deleting 494
differences 20, 138
differing 20, 138
editing 493
managing 493
reverting 20, 139
sorting list 494
viewing 138
VFS
adding source control profiles 409, 553
editing source control profiles 409, 554
source control profiles 408, 553
video capturing
enabling for tests 149
viewing
assigned executions 126
audit log 478
external properties 80
requirement attachments 53
test attachments 125
test run details 36, 208
viewing execution result files
visual tests 580
viewing log files
service manager 503
viewing recent changes
requirements 59
tests 99
views
reporting 299

Virtual File System
source control profiles 408, 553
visual tests
viewing execution result files 580
VMware vCloud
adding profile 469
deleting profile 470
editing profile 470
limitations 471
mappings 471

W

Web browsers
displaying host name 506
hiding host name 506
host name display 506
Web server connections
SSL 434
Windows Script Host
log information 141, 585
parameters 141, 584
properties 140, 584
result files 141, 585
supported script languages 140, 583
viewing returned information 141, 585
Windows Script Host tests
overview 139, 583
Windows scripting
configuring 108, 583
Word
importing requirements 63
Word file
requirements 64
workflow
action properties 279
add state owners and permissions 277
bug 272
current state 280
customize actions, reason codes, action dialogs 279
customizing states 278
developing 275
documentation issue 274
drawing a state diagram 275
enhancement 273
name actions with verbs 276
new state list 280
optimizing 277
permissions tab 283
prepare data entry sheet 277
standard action fields tab 281
state customization 278
state properties 278
user-defined action fields tab 282
working with issues
actions for 241
working with tests
requirements 54
WSH
overview 139, 583
parameters 141, 584
properties 140, 584
supported script languages 140, 583
viewing returned information 141, 585